VALUES IN ANTARCTICA:

DISCOURSE ANALYSES OF TWO TOPICAL ISSUES IN ANTARCTIC POLICY

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Abstract

In light of growing international awareness and interests in the 'frozen continent' of Antarctica, the topic of *Values in Antarctica* has recently gained more research interest. Due to the complexity of the concept of value, values in Antarctica have been approached from many different perspectives, including Antarctic wilderness and aesthetic values, values manifested in Antarctic law or value based behavioural changes through the Antarctic experience. The present thesis addresses values as human connections to Antarctica with a focus on Antarctic policy-making.

The investigation contained three analytical stages that built on each other. The first stage has been an interdisciplinary literature review examining what values are and how values can be studied, but also considered values in the context of environment, human behaviour and policy. Value and value-related concepts were selected in view of a potential application to the Antarctic. The second analytical stage involved a general framework analysis of the Antarctic Treaty System to identify key elements and structures in the system suitable for a study of Antarctic values, and to develop the research questions. The third stage of analysis included empirical investigations of two Antarctic case studies.

Key elements that influence the Antarctic Treaty System in a way that is relevant for a study of Antarctic values include external factors and events, action situations and actors participating in these action situations. Antarctic Treaty Meeting of Experts appeared as an action situation particularly suitable for a study of Antarctic values. The last two Antarctic Treaty Meeting of Experts on ship-borne tourism and climate change have been chosen as case studies, presenting two topical issues in Antarctic policy. Using discourse analysis based on documents submitted to the meetings and the meetings' reports, values that are driving the discourses were to be identified through structures and patterns in the discourses. Further, based on the discourse analysis following three research questions were to be answered: *What role is ascribed to Antarctica concerning contemporary issues? Where and why do conflicts arise in the ATS policy-making process that are based on conflicting values? What changes in the underlying belief-systems are driving policy-making processes and what has caused the change?*

Based on the literature, values are defined as internalised codes that affect behaviour and include judgements on what is good and desirable. Through the framework analysis it was identified that Antarctic policy involves a multi-layered system of different value systems, which was considered in the two case studies. For both case studies, values in the discourses were mostly identified based on Schwartz's basic human value theory. The most prominent human value that drives both the ship-born tourism and the climate change discourse is security. Both discourses are further motivated by the conservation of the Antarctic environment and its associated ecosystems. Other values, such as power and conformity with rules were also clearly expressed in the discourses. With regard to the research questions, both case studies discussed Antarctica from two different perspectives, as a hazardous place for human activities and as a place vulnerable to any kind of changes. Conflicts in the ship-borne tourism discourse were more obvious, while the climate change discourse within the expert meeting proceeded in consensus. Value-based changes that are evident in changes in belief-systems underlying Antarctic policy-making could not be identified.

This thesis argues, based on careful consideration of documents, that values play a crucial role in Antarctic policy-making at a number of different scales: individuals, political actors, and governmental levels. Values were found to be at the core of most, if not all, conflicts within the Antarctic system. Finally, this thesis provides the first understanding of the values held by the various stakeholders involved in governing and use of the Antarctic, which is crucial for further decision-making and research.

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Acronyms and Abbreviations

AC	Awareness of adverse Consequences
ACCE	Antarctic Climate Change and the Environments
ACE	Antarctic Climate Evolution
ACF	Advocacy Coalition Framework
ACIA	Arctic Climate Impact Assessment
AGCS	Antarctica in the Global Climate System
AR	Ascription of Responsibility to self
ASMA	Antarctic Special Managed Areas
ASOC	Antarctic and Southern Ocean Coalition
ASPA	Antarctic Specially Protected Areas
ATCM	Antarctic Treaty Consultative Meeting
ATME	Antarctic Treaty Meetings of Experts
ATP	Antarctic Treaty Party
ATS	Antarctic Treaty System
BP	Background Paper
CBD	Convention on Biological Diversity
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
CCAS	Convention for the Conservation of Antarctic Seals
CDA	Critical Discourse Analysis
CEP	Committee for Environmental Protection
CLCS	Commission on the Limits of the Continental Shelf
CMS	Conservation of Migratory Species of Wild Animals
COMNAP	Council of Managers of National Antarctic Programs
COMSAR	Sub-Committee on Radiocommuincation and Search and Rescue
COP	Conference of the Parties
CPR	Common-pool Resource
CRAMRA	Convention on the Regulation of Antarctic Mineral Resource Activities
DIRECTEMAR	Direccíon General del Territorio Marítimo y de Marina Mercante
EAIS	Eastern Antarctic Ice Sheet
EBA	Evolution and Biodiversity in the Antarctic
ECS	Extended Continental Shelf
EIES	Electronic Information Exchange System
GCOS	Global Climate Observing System
IAATO	International Association of Antarctica Tour Operators

IAD	Institutional Analysis and Development
ICG	Intersessional Contact Group
ICJ	International Court of Justice
ICRW	International Convention for the Regulation of Whaling
IGY	The International Geophysical Year
IHO	International Hydrographic Organization
IMO	International Maritime Organisation
IOC	Intergovernmental Oceanographic Commission
IP	Information Paper
IPPC	Intergovernmental Panel on Climate Change
IPY	International Polar Year
IUCN	International Union for the Conservation of Nature
Madrid Protocol	Protocol on Environmental Protection to the Antarctic Treaty
MFAT	New Zealand Ministry of Foreign Affairs and Trade
MoU	Memoranda of Understanding
MRCC	Maritime Rescue Coordination Centre
MSC	Maritime Safety Committee
NAP	National Antarctic Programme
NEP	New Ecological Paradigm
NGO	Non-governmental Organisation
PATA	Pacific Asia Travel Association
PSC	Port State Control
PSSA	Particular Sensitive Sea Area
RCC	Rescue Coordination Centres
Rio Declaration	Rio Declaration on Environment and Development of the UN
RFMO	Regional Fisheries Management Organisations
RVS	Rokeach Value Survey
SAO	Senior Arctic Officials
SAR	Search and Rescue
SATCM	Special Antarctic Treaty Consultative Meeting
SCAR	Scientific Committee on Antarctic Research
Secretariat	Secretariat of the Antarctic Treaty
SP	Secretariat Paper
TEA	Tradable Environmental Allowance
UCP	Unified Command Plan
UN	United Nations

UN Charter	Charter of the United Nations
UNCLOS	United Nations Convention of the Law of the Sea
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environmental Programme
VBN	Value-Belief-Norm
WAIS	Western Antarctic Ice Sheet
WCED	World Commission on Environment and Development
WMO	World Meteorological Organization
WP	Working Paper
WTO	World Tourism Organization
WVS	World Value Survey
WWF	World Wildlife Fund

Introduction

Antarctica is usually placed at the very bottom of world maps, where it almost falls out of the picture, metaphorically speaking. Symbolically, this picture is no longer doing Antarctica justice. The emerging climate change debate and the International Polar Year in 2007/2008 increased awareness of both polar regions widely from the scientific community to the general public. Antarctica now features prominently in the media, which has led to these regions becoming more accessible and present in everyday life. With increased awareness, questions have arisen that are bound to a desire to understand these places. The most elementary questions are: Why is Antarctica valuable? What makes Antarctica valuable?

The topic of this thesis, *Values in Antarctica*, arose from the Social Sciences Action Group (SSAG), a research entity that was formed in 2009 and operated under the auspices of the Scientific Committee on Antarctic Research (SCAR). SSAG focussed on values as human connections to Antarctica. Human connections to Antarctica also represent the phenomenon the present thesis is concerned with. Unlike the Arctic, Antarctica does not have any indigenous population and is the most isolated place on Earth. Antarctica's climatic conditions and geographic location are natural barriers that have disconnected Antarctica from civilisation. Human interactions with Antarctica, whether through actual contact with the continent, or virtually through transmission media, demonstrate existing links that transcend physical barriers and social conventions. Values are believed to be the connecting element. Even when the SSAG became the SCAR Humanities and Social Sciences Expert Group (HASSEG), the values project continued to play an important role in the group's research efforts. The present thesis is a contribution to the SSAG/HASSEG values project and adopts the group's interdisciplinary research approach.

There is already an emerging trend in recent publications that address aspects of values in the Antarctic context. Such aspects include Antarctic wilderness and aesthetic values (e.g., Codling, 2001; Summerson & Bishop, 2012; Tin et al., 2008), values manifested in Antarctic law (e.g., French, 2008; Hemmings, 2012; Roots, 2011), ethical questions related to Antarctica and human activities (e.g., Guyomard, 2010; Hemmings, 2009; Rolston III, 2002a), and value change through Antarctic experiences (Maher, 2007). Missing to date is an interdisciplinary theoretical examination on how these different dimensions of value are linked within the Antarctic context. The present thesis addresses this gap. The objective of this thesis, with view to the overarching human connection to Antarctica theme, is to research what general role values play in life, social life and policy, and how this applies to Antarctica. As such, the thesis presents a theory-based study, which develops a working definition of values and the research questions for the Antarctica case study in the process. Values in Antarctica are examined with a focus on Antarctic policy.

In the interest of a thorough investigation of values in the Antarctic context, this thesis is divided into three analytical stages that build on each other. The first stage has been an interdisciplinary literature review examining what values are and how values can be studied, in order to develop a working definition of values. The literature review further included a scrutiny of values in the context of environment, human behaviour and policy, in view of an application to Antarctica. At the second stage, which is a preliminary stage to the empirical investigation, a general framework analysis of the Antarctic Treaty System has been conducted to identify key elements and structures in the system suitable for a value study, and to develop research questions for such a study. Finally, the third stage has been by a document-based discourse analysis of two topical issues in Antarctic policy.

This analysis of Antarctic values in three stages has resulted in definite conclusions about how values in Antarctica influence the governance and use of this place. Values play a crucial role

in Antarctic policy-making and are at the core of most conflicts occurring in policy-making processes.

1. Value Definitions

1.1. Troubles with a definition of value

A study of values in the Antarctic context requires a comprehensive understanding of values as a concept. Deliberations over the nature of values, how the value of an entity accrues, why people value things and how this relates to people's behaviour can be traced back to ancient times and the classical philosophy of Plato and Aristotle. As a result, value theory has produced a substantial literature, but despite this, a clear and coherent definition of value is still lacking to this day. In contemporary everyday language, the term is used with many different contexts and meanings. Value can, for example, refer to a measured value, stocks or real estate (monetary) value, empirical value, moral value, and considering different languages introduces further ambiguity. Ambiguities with the term are not only perceived from a layman point of view; there is also confusion within academia due to multiple definitions of value that can be discipline-specific.

The study of values has received attention across many disciplines, traditionally in the fields of philosophy, psychology and economics. As a result, parallel concepts of value exist with different approaches and foci. In the economic sense, value usually means the value of goods in its mercantile meaning and, as such, a value can be expressed as a monetary price. However, in psychology, values are traditionally understood as drivers of human behaviour. Further, ethical values refer to moral judgements of what is good or bad, while "axiology" – the philosophical study of value – generally focuses on the nature of a value (V). There are no sharp boundaries between value study approaches or definitions and overlaps do exist. In the sections that follow, selected value concepts from different disciplinary perspectives will be discussed and analysed in terms of their similarity and adaptation of thoughts. The chapter concludes with a resulting definition of values for the present thesis.

1.2. General reflections on the value concept

Despite the different value approaches, scholars have reached consensus over the rather abstract and complex nature of the concept of value. Given the intangible nature of the research topic, some more general philosophical reflections are likely a good starting point. Moore famously claims, "good itself is indefinable" (1903, p. 9), as similarly, the colour yellow is simply yellow. Following Moore's reasoning, Wittgenstein points to the "boundaries of language" (1965, p. 12). Boundaries become particularly obvious in such cases of a value or a colour. These kinds of phenomena, their existence and meanings, go beyond the language available to define them. The most prominent questions in value theory go back to Moore again, who distinguishes two different kinds of ethical questions related to value judgements: "the question what things are good in themselves, and the question to what other things these are related as effects" (1903, p. 27). This is the distinction of intrinsic value and extrinsic value. Only those values that are good for their own sake can be intrinsic. Extrinsic values, in contrast, are values that are good for the sake of something else that they are related to in some way or, in short, values that are not intrinsic (Rønnow-Rasmussen & Zimmerman, 2006; Zimmerman, 2010). In addition, the distinction of intrinsic and extrinsic values often goes along with Aristotle's distinction of ends and means (see *Nicomachean Ethics*). In *Metaphysics,* Aristotle argues, any for-the-sake-of series – for example, A is good for the sake of B and B is good for C – is directed both towards, and terminated, by final cause (see also Rescher, 1969). Thus, only ends are considered as intrinsically good.

However, the concept of intrinsic value is controversial. Controversy mainly arises from questions about the objectivity or subjectivity of values, and whether a value can exist as an absolute or is always relative (Berleant, 1973; Clarke, 1938; Quinn, 1974). Pragmatists in particular have questioned the existence of intrinsic values, referring to this concept's epistemological problem of *a priori* values. Dewey (1970) rejects the existence of any absolutistic nature of a value, instead, he claims that values are relational in the sense that they involve a "variety of space-time connections of different things" (p. 69). With this view, a 'thing' becomes an independent entity that exists without a value. Dewey understands the value of a thing, rather, as a supplement, something that was added to the thing "under specific condition of space-time" (1944, p. 451). Value is essentially a "behavioral subject matter" (Dewey, 1970, p. 64), generated through internal or mental processes. As such, metaphysical or ethical questions about value are extended by psychological questions. Perry (1914) justifies applying the value concept to the field of psychology as value, according to common beliefs, concerns both motor-affective attitudes and consciousness of good or bad state of affairs. Perry (1926, 1954), himself, is known for defining a value as 'any object of any interest', for which a value cannot exist until a being desires something.

Similar thoughts can be found in German-speaking Europe predating Dewey and Perry's works around the end of the nineteenth century. Here, a school of thought led by Brentano and Meinong supports an empirical view on value studies and argues for the aptness of psychological investigations (Johnson, 1973). The so-called Austrian school of thought focuses on the mental experience of valuing. What is most important for any metaphysical investigation on the nature of value are people's attitude and behaviour towards the value object, not the value object itself. Every value is based on a value-feeling [Werthgefühl], which is a basic feeling that exist regardless (Meinong, 1968). As such, value-feeling are not to be confused with actual feelings felt at a certain time in a certain context. Meinong explains a value-feeling as an emotional response to believed states of affairs, which presupposes judgements and ideas of a value object (Marek, 2013; Meinong, 1968). Thus, Meinong's value concept differs from Perry's value definition in that desire results from a thing having value because it is valued.

Brentano, on the other hand, shows parallels to Dewey in his concern for the connection of elements fundamental to the existence of values. Brentano (1968) argues that thinking or seeing has always related to both the object, and the thinker or observer themselves. With reference to Descartes, Brentano identifies three categories of psychological phenomena: thinking, or having ideas [Vorstellen], judging [Urteilen], and emotions or volitions [Gemütsbeziehungen] (Brentano, 1968; Chisholm, 1986; Kraus, 1937). From here, two assumptions are derived on how categories are linked. First, both judgements and emotions occur in polarity and are either positive or negative (e.g., good versus bad, love versus hate). Second, having an idea of a thing is presupposing to be able to judge or feel for that thing (ibid.).

In view of the present aim to investigate values on the grounds of human connections to Antarctica, the view of value as a thing of the mind, and behavioural subject-matter, has been adopted, and will be elaborated upon further in the following sections, which discuss the psychology of the relationship between value and human behaviour.

1.3. Clyde Kluckhohn's definition of value

Fundamental for the theoretical part of this thesis is the value definition and concept of Clyde Kluckhohn. Kluckhohn is recognised for his efforts in developing a comprehensive definition of value (Herskovits, 1964; Parsons & Vogt, 1962; Rescher, 1969). Despite being an

anthropologist who emphasises the compatibility between two academic fields (psychology and anthropology) (Kluckhohn, 1959), Kluckhohn's work on value has proved to be very influential on value concepts in psychology. In *Value and Value-Orientation in the Theory of Action* (1951), Kluckhohn dedicates the entire essay to the development of a definition of value. As the title of the essay suggests, his definition of value is explicitly designed to apply to the theory of action, for which the act of valuing and the process of evaluation are the focus. He defines a value as:

> "a conception, explicit or implicit, distinctive of an individual or characteristic of a group, of the desirable which influences the selection from available modes, means, and ends of action" (1951, p. 395).

This definition encompasses various crucial aspects of value, which Kluckhohn explains thoroughly by discussing each component of his definition. In the following, core points of his elaborations are presented.

A value is a conception, explicit or implicit, distinctive of an individual or characteristic of a group:

A value is a logical construct. The abstract nature is a defining characteristic of value, due to which values are not directly observable as such, but their effects may be perceived through transmission. For example, Kluckhohn speaks of "internalized symbolic systems" (1951, p. 396; see also Rescher, 1969) that manifest themselves in the way people talk and act. As such, values can be studied through scientific analysis of verbal and nonverbal behaviour. The verbalisation of values may occur in an explicit manner when one expresses that "x" is one of his or her values. Often, however, deep-rooted values are only indirectly expressed in rational language. In order to detect "implicit" values, it is necessary to consider values in a broader framework.

Values are mostly cultural products, in that they are influenced by socio-cultural factors. Against such factors, personality is a crucial variable in shaping values of individuals. Each group value can have a private interpretation and meaning. However, at all levels – whether the individual level, the cultural or societal level – values drive behaviour by providing clues as to what behaviour is acceptable and what is not. Kluckhohn also speaks of "codes and standards" (1951, p. 399) in this context. Such codes and standards induce some coherence or regularities in behaviour, observable in certain patterns on the individual level as well as the collective level. Elsewhere, Kluckhohn states how "[e]ach way of life is a pattern" and that "[e]ach pattern depends, to a considerable degree, upon the underlying system of ideas and particularly of ideas about values" (1958, p. 469). Values are relatively stable and persistent through time, but they are not free from change. There is the possibility for value change, for which, patterns would also have to change.

This first part of Kluckhohn's definition represents the cognitive element of his value concept. There is also an affective element as well as the conative elements included in the second part of Kluckhohn's definition.

The desirable

The 'desirable' refers to the affective element of a value. The desirable, in conjunction with 'the conception' signifies the union of reason and feeling in the definition, which is crucial for the value concept (Kluckhohn, 1951). In the inherent connection between affective and cognitive elements, Kluckhohn's value concept reflects Brentano's categories of psychological phenomena mentioned in the previous section. "To speak of 'values' is one way of saying that human behavior is neither random nor solely instinctual," Kluckhohn says (1958, p. 474). The desirable includes moral, aesthetic and spiritual aspects. The desirable is not to be confused

with ‘the desired.’ The desirable goes beyond desires in terms of what one wants. The desired refers to what one feels is right and proper to want for oneself and for others (Kluckhohn, 1962). It is more than a simple preference, it is a justified preference of what one ‘ought’ or ‘should’ desire. Justification, again, is either based on reason, moral or aesthetic grounds, but often on a combination of two or all of the above (Kluckhohn, 1951).

Selection from available modes, means, and ends of action

Selection in Kluckhohn’s definition of value embodies the third value element: conation. Here, selection refers to the fact that people normally choose a course of action from many alternatives. Values not only play a role in deciding what is the best thing to do, but they also influence the preferred way of how it should be done. “Available modes, means and ends” imply what Kluckhohn calls an “economy of values” (1951, p. 402). Since limited resources – such as time, financial power, physical strength – are a given for everyone, selections between possible options on how to invest resources are necessary. In the cost-benefit analysis, the intensity with which a value is felt is crucial. Therefore, any action must be “a compromise between motivation, situational conditions, available means, and the means and goals as interpreted in value terms” (Kluckhohn, 1951, p. 403).

Kluckhohn also suggests three areas of human action, in which his value concept can be applied: (1) approval or disapproval statements (expressed by word or deed), (2) efforts and investments towards the achievement of an end, and (3) choice situations. Selective behaviour is key for any study of value in the theory of action. Kluckhohn’s empirical study of value focussed on value orientations that become apparent through pattern in selective behaviour. Value orientation is defined as “a generalized and organized conception, influencing behavior, of nature, of man’s place in it, of man’s relation to man, and of the desirable and nondesirable as they may relate to man-environment and interhuman relations” (Kluckhohn, 1951, p. 411). Kluckhohn’s wife, Florence, developed the theory further by the aspect of variation in value orientation (Rockwood Kluckhohn & Strodtbeck, 1961; Rockwood Kluckhohn, 1960). In this context, value orientations are positions among basic issues of being and co-existence.

Both Clyde and Florence Kluckhohn postulate that all human beings share some very basic but common features of biological traits and psychological principles that drive behaviour (Hills, 2002). From here, variations in value orientations occur due to cultural, sub-cultural and individual differences in interpretations and experiences. To identify value orientations, Florence Kluckhohn focuses on “common human problems for which all peoples at all times must find some solution” (Rockwood Kluckhohn, 1960, p. 2). More precisely, value orientations are inferred from people’s selection between possible solutions, which exist for every problem. Common problems refer to the character of human nature (good, neutral or evil), the human relationship to nature (mastery, harmony or subjugation), the temporal focus in life (past, present or future), the general orientation of human behaviour (achieving, learning or self-expression) and the relationship between human beings (individualistic, equal, hierarchical). The fact that human problems are common to all societies allows the study of both cross-cultural and intra-cultural variations in value orientations (ibid.).

Clyde Kluckhohn’s approach is slightly different. He argues in support of the existence of universal values. Universal values touch on the question of intrinsic value, which Kluckhohn does not answer directly. Rather, he refers to universal values as those that transcend cultural differences, for which universal values are recognised in all cultures (Kluckhohn, 1951). For example, most cultures recognise incest or unjustifiable killing as undesirable and prohibit such actions. Prescription and proscription of the associated symbolization may vary in detail, but the basic idea remains the same. Kluckhohn uses the term ‘universal’ rather than ‘absolute’, admitting the latter is hardly determinable empirically, whereas the former is (Kluckhohn,

1958). Kluckhohn assigns universal values intrinsic features, but in his reluctance of determine them as absolute, his argumentation is rather ambiguous.

As mentioned earlier, Kluckhohn's concept of value had a significant impact on the development of further influential value theories in psychology. His theoretical elaborations on the value concept and suggestions for possible applications are echoed in key value theory in the field of social psychology including theories by Milton Rokeach, Shalom H. Schwartz and Geert Hofstede. Kluckhohn, as an anthropologist, naturally ascribes great importance to cross-cultural value studies on the basis of some common basic values. Thus, further development of this idea will now be discussed.

1.4. Milton Rokeach's definition of value

Like Kluckhohn, Rokeach (1973) also drafts an operational definition of value suitable for the study of human behaviour. His value concept is based on five assumptions about the nature of value: (1) individuals hold only a relatively small number of values, (2) individuals all hold the same values but to varying degrees, (3) values relate to each other in an organised value system, (4) values are influenced by cultural, social and institutional factors as well as personality, and (5) values affect all social phenomena (Rokeach, 1973). The first and second assumption corresponds to Kluckhohn's arguments for the existence of universal values as discussed above. Assumption four and five are comparable to Kluckhohn's statements about values being shaped by both socio-cultural factors and personality, which are observable through patterns in behaviour and social life. Rokeach's third assumption appears to be the crux of his value concept. The importance of value systems for Rokeach's value concept become clear in his value definition, to which he adds a definition of value systems:

> "A value is an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence. A value system is an enduring organization of beliefs concerning preferable modes of conduct or end-states of existence along a continuum of relative importance" (1973, p. 5).

Rokeach refers to value as an enduring belief rather than a conception of the desirable as Kluckhohn's definition suggests. In fact, Rokeach explicitly speaks against the use of terms such as 'conception of the desirable,' 'ought' or 'should' for any definition of value, believing that such terms are inappropriate because they are themselves undefined (ibid.). However, in his attempts clarifying the terms in his own definition, parallels to Kluckhohn's three value elements become obvious.

Generally, Rokeach distinguishes between three types of beliefs: (1) descriptive or existential beliefs that can be either true or false, (2) evaluative beliefs that include a judgement on whether an object is good or bad, and (3) prescriptive or proscriptive beliefs that include a judgement on whether certain means or end of action are desirable or undesirable (Rokeach, 1973). Values fall under the third belief type. In a figurative sense, there are similarities between Kluckhohn's understanding of the 'concept of the desirable' and Rokeach's value concept. Rokeach takes values as beliefs that include a judgement on what action is desirable, which aligns with what Kluckhohn suggests. Moreover, Rokeach acknowledges that values have a cognitive, affective and behavioural component – which, as he claims, is true for all beliefs.

Rokeach agrees with Kluckhohn's ideas in principle, but by changing the wording in his definition, he gives his value concept a different emphasis. For instance, speaking of

'preferable'[1] rather than 'desirable' or 'selection' stresses the fact that something is preferable to something else. 'Mode of conduct' or 'end-state of existence' refer to the distinction of instrumental values and terminal values, and thus are consistent with the distinction of means and ends. However, Rokeach underlines the importance of this distinction as a distinction between two different kinds of values. The distinction of instrumental and terminal values is significant for the functional relationship between the two kinds of values, which, in turn, is important for his understanding of value systems. Also, by defining a value as an enduring belief, Rokeach underscores both the absolute quality and the relative quality of values. Values are stable but adjustable to change. "Any conception of human values must be able to account for the enduring character of values as well as for their changing character" (Rokeach, 1973, p. 6).

Rokeach perceives values as being learned, thus the question of intrinsic value does not occur in his deliberation. In this sense, value systems have to be understood in an evolutionary context of different phases in the life of an individual. Initially, values are learned independently as an absolute. This is as much as to say that parents teach their children that something x is either good and therefore desirable or the opposite, bad and undesirable. This x is just good or bad without any restrictions. In the process of maturation, every individual gradually learns through experience how such isolated, absolute values relate to each other. Depending on the individual and personal experiences, a personalised system of values evolves, which is hierarchically organized by the priority or importance assigned to each value (Rokeach, 1973, 1985). Throughout life, priorities and importance of values can change. However, important in Rokeach's value concept is that a change in values refers to a "reordering of priorities" (Rokeach, 1973, p. 11), which means that the hierarchical order of the value system changes but not the values in the system. Values remain stable regardless of the changes in the value system's structure.

As mentioned above, Rokeach distinguishes between terminal values and instrumental values. He further assumes that the total numbers of terminal values and instrumental values differ significantly. Individuals are believed to possess many more instrumental values than terminal values. Consequently, Rokeach treats sets of instrumental values and terminal values as two separate systems. Each system is hierarchically organised along a continuum of importance. Both systems are "functionally interconnected systems, wherein all the values concerning modes of behavior are instrumental to the attainment of all the values concerning end-states" (Rokeach, 1973, p. 12). Table 1.1 below shows two lists of terminal and instrumental values Rokeach compiled for a survey (also known as the Rokeach Value Survey (RVS)), which he uses to test value prioritisation in people.

[1] Rokeach deliberately uses this term as a predicate adjective and not as a noun.

Table 1.1: 18 terminal values and 18 instrumental values (Rokeach, 1973, p. 28)

Terminal Value	Instrumental Value
A comfortable life (a prosperous life)	Ambitious (hard-working, aspiring)
An exciting life (a stimulating, active life)	Broadminded (open-minded)
A sense of accomplishment (lasting contribution)	Capable (competent, effective)
A world at peace (free of war and conflict)	Cheerful (lighthearted, joyful)
A world of beauty (beauty of nature and the arts)	Clean (neat, tidy)
Equality (brotherhood, equal opportunity for all)	Courageous (standing up for your beliefs)
Family security (taking care of loved ones)	Forgiving (willing to pardon others)
Freedom (independence, free choice)	Helpful (working for the welfare of others)
Happiness (contentedness)	Honest (sincere, truthful)
Inner harmony (freedom of inner conflict)	Imaginative (daring, creative)
Mature love (sexual and spiritual intimacy)	Independent (self-reliant, self-sufficient)
National security (protection from attack)	Intellectual (intelligence, reflective)
Pleasure (an enjoyable, leisurely life)	Logical (consistent, rational)
Salvation (saved, eternal life)	Loving (affectionate, tender)
Self-respect (self-esteem)	Obedient (dutiful, respectful)
Social recognition (respect, admiration)	Polite (courteous, well-mannered)
True friendship (close companionship)	Responsible (dependable, reliable)
Wisdom (a mature understanding of life)	Self-controlled (restrained, self-disciplined)

Crucial for Rokeach's value theory are also his deliberations on boundaries of and functional linkages between similar but different concepts such as *belief*, *attitude* and *value*. Starting point is the assumption that beliefs, attitudes and values are functionally integrated into one cognitive system. Consequently, if one element changes, all others will be affected and culminate in behavioural change. The concept of belief represents the overriding system that incorporates types of beliefs – as already indicated above. In the total belief system, belief is

> "an organization of beliefs varying in depth, formed as a result of living in nature and in society, designed to help a person maintain, insofar as possible, a sense of ego and group identity, stable and continuous over time" (Rokeach, 1968, pp. 11–12).

Attitudes are not beliefs, but Rokeach ascribes attitudes the role of a belief subsystem. As such, attitudes represent an organisation of beliefs that is relatively stable, but one that is bound to a specific object or situation. Values, on the other hand, are at the core of people's total belief system. Both values and attitudes influence human behaviour, but on different levels. Attitudes predispose behaviour on the grounds that several beliefs are in focus during a specific situation. Values are specific beliefs that guide behaviour transcendentally across objects and situations towards an ultimate end (Rokeach, 1968).

The differentiation of values and attitudes implies that there are many factors that impact on human behaviour, which will become important in the next chapters. In the following, however, the role of values specifically as motivational drivers of behaviour is further explored.

1.5. Shalom H. Schwartz's model of relations among basic human values

Schwartz initially attempted to develop a value theory to interpret data collected through the Rokeach Value Scale that is directly linked to Rockeach's theory of value and value system (Cieciuch et al., 2013). He set out to identify a universal structure of basic human values that would allow a cross-cultural value study (Schwartz & Bilsky, 1987, 1990; Schwartz, 1992). With this project, Schwartz combined Rokeach and Kluckhohn's approaches, focussing on the systematic organisation of a set of values that are related to each other as well as on the universal significance of values as an essential common human feature. In reviewing writings by Rokeach, Kluckhohn and other authors who focus on human values (e.g., Allport, 1961; Feather, 1995; Morris, 1956), Schwartz identifies six general value characteristics: (1) values are beliefs that cannot be separated from affect, (2) values are desirable goals that provide motivation for action, (3) values are generalised across actions and situations, (4) values set standards, (5) values vary in importance in relation to each another, and (6) the order of value importance affect behaviour (Schwartz, 2012). In summary, he defines values as:

> "trans-situational goals, varying in importance, that serve as guiding principles in the life of a person" (2011b, p. 464).

Central in Schwartz's value theory is the existence of basic human values that are recognised in all societies. Similar to the Kluckhohns, such common basic human values are grounded in universal requirements for human beings and societies, including existential human needs, a baseline for social interaction and needs for group stability and safety (Schwartz & Bilsky, 1990). In line with both Kluckhohn and Rokeach, Schwartz also considers individual variations in relations between values depending on personal and social situational circumstances (Schwartz, 1992). Schwartz's contribution lies in the identification of ten basic human values he defines by their relevant, inherent, motivational goal (Table 1.2).

Moreover, Schwartz introduces a theoretical model of an overall structure of value relations. Figure 1.1 illustrates the circular structure of Schwartz's model, presenting a continuum of related motivational goals behind basic human values. The theoretical basis of the continuum of related motivational goals of values is that some interferences between values are more problematic than others. "Actions taken in the pursuit of each value type have psychological, practical, and social consequences that may be compatible or may conflict with the pursuit of another value type" (Schwartz, 1992, p. 4). The arrangement of basic values shown in Figure 1.1 is based on similarities between values. The closer values are to each other, the more alike and compatible they are. Values that are further away from each other are more likely to conflict. Boundaries between values and their characterising motivational goals are fuzzy (Schwartz, 2011a). Therefore, motivational differences between values should be seen as continuous rather than discrete entities in Schwartz's value theory (Davidov et al., 2008; Schwartz, 1992; Schwartz et al., 2012).

Table 1.2: 10 basic human values defined by each attributed motivational goal (Schwartz, 2012, pp. 5-7)

Value	Motivational Goals
Self-Direction	Independent thought and action-choosing, creating, exploring. (examples: creativity, freedom, choosing own goals, curious, independent)
Stimulation	Excitement, novelty, and challenge in life. (examples: a varied life, an exciting life, daring)
Hedonism	Pleasure or sensuous gratification for oneself. (examples: pleasure, enjoying life, self-indulgent)
Achievement	Personal success through demonstrating competence according to social standards. (examples: ambitious, successful, capable, influential)
Power	Social status and prestige, control or dominance over people and resources. (examples: authority, wealth, social power)
Security	Safety, harmony, and stability of society, of relationships, and of self. (examples: social order, family security, national security, clean, reciprocation of favours)
Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms. (examples: obedient, self-discipline, politeness, honouring parents and elders)
Tradition	Respect, commitment, and acceptance of the customs and ideas that one's culture or religion provides. (examples: respect for tradition, humble, devout, accepting my portion in life).
Benevolence	Preserving and enhancing the welfare of those with whom one is in frequent personal contact (the 'in-group'). (examples: helpful, honest, forgiving, responsible, loyal, true friendship, mature love)
Universalism	Understanding, appreciation, tolerance, and protection for the welfare of all people and for nature. (examples: broadminded, social justice, equality, world in peace, world of beauty, unity with nature, wisdom, protecting the environment)

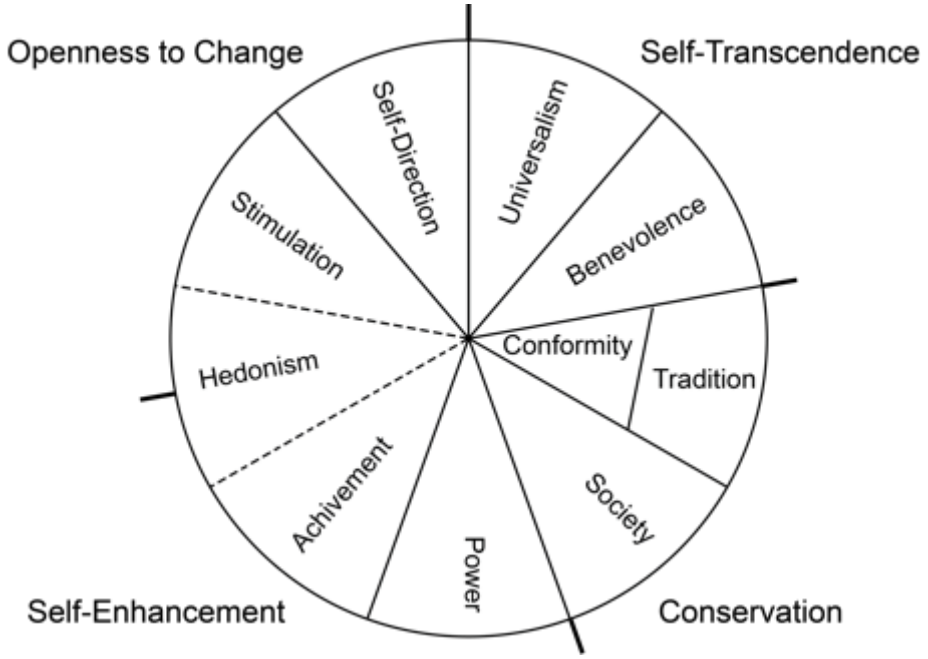

Figure 1.1: Theoretical model of relations among 10 motivational types of value (Schwartz, 2012, p. 9)

Within the motivational continuum of relations between ten basic human values, Schwartz identifies four overarching clusters with two bipolar dimensions – self-enhancement versus self-transcendence and conservation versus openness to change. Self-enhancement values include *power* and *achievement,* while *universalism* and *benevolence* represent self-transcendence values. Openness values are *self-direction* and *stimulation* and thus opposed to the conservation values such as *security*, *tradition* and *conformity*. *Hedonism*, however, Schwartz treats as a hybrid with components of both openness and self-enhancement.

Recently, Schwartz's theory of basic human values was reviewed and refined (Schwartz et al., 2012). The values *self-direction*, *power*, *security*, *conformity*, *universalism*, and *benevolence* are now more narrowly defined, including different facets of these values (Table 1.3). Also, a new value was added: *humility*. As a result, the total number of values was nineteen compared to the original version, which had ten. In addition to this extended set of values, the refined version also included two more organising principles, which Schwartz (2006b, 2010) developed in later works, structuring the system of basic human value relations (Figure 1.2). Each of the two principles has, again, two bipolar dimensions. The principle of the interest of value attainment can have either personal or social focus. The principle of value relations to anxiety may promote growth and self-expansion versus anxiety-avoidance and self-protection (Schwartz, 2012).

Table 1.3: The 19 values in the refined theory of basic human values, each defined by its motivational goal (Schwartz et al., 2012, p. 669)

Value	Motivational Goals
Self-Direction – Thought	Freedom to cultivate one's own ideas and abilities
Self-Direction – Action	Freedom to determine one's own actions
Stimulation	Excitement, novelty, and change
Hedonism	Pleasure and sensuous gratification
Achievement	Success according to social standards
Power – Dominance	Power through exercising control over people
Power – Resources	Power through control of material and social resources
Face	Security and power through maintaining one's public image and avoiding humiliation
Security – Personal	Safety in one's immediate environment
Security – Societal	Safety and stability in the wider society
Tradition	Maintaining and preserving cultural, family, or religious traditions
Conformity – Rules	Compliance with rules, laws, and formal obligations
Conformity – Interpersonal	Avoidance of upsetting or harming other people
Humility	Recognizing one's insignificance in the larger scheme of things
Benevolence – Dependability	Being a reliable and trustworthy member of the in-group
Benevolence – Caring	Devotion to the welfare of in-group members
Universalism – Concern	Commitment to equality, justice, and protection for all people
Universalism – Nature	Preservation of the natural environment
Universalism – Tolerance	Acceptance and understanding of those who are different from our self

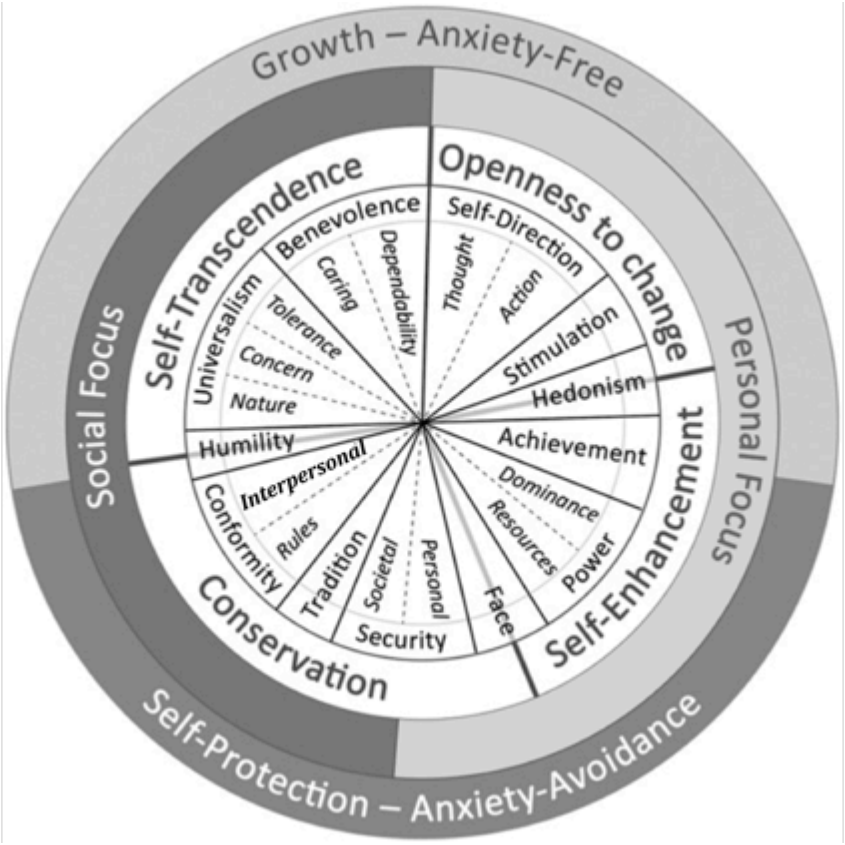

Figure 1.2: Circular motivational continuum of 19 values in the refined theory of basic human values (Schwartz et al., 2012, p. 669)

Schwartz's theoretical models of value relations along a motivational continuum provide the basis to understand people's individual priorities in values in correspondence with their decisions, attitudes and behaviour. Like Kluckhohn and Rokeach, Schwartz (Schwartz, 2006b, 2012) acknowledges that values vary in the importance people ascribe to them. A universal model of basic human values organised into a coherent system that indicates the dynamics in value relations and consequences (practical, psychological, and social), however, would allow the study of individual value-based decision-making across cultures (Schwartz, 2011b).

Consequences are particularly critical in situations where conflicting values collide. Dilemma situations occur when a choice has to be made between two (or more) values that are not compatible with each other but equally important.[2] Such situations pose challenging complications for practical reason and rational choice (Richardson, 1994). Particularly practical reasoning will be discussed in more detail in later chapters. More than two decades of empirical studies testing the robustness of Schwartz's theoretical model across societies support the model's structure (Bilsky et al., 2010). Nevertheless, some variations have been noted, which researchers attribute to "differences in how well-articulated people's value systems are in societies at different levels of development" (Bilsky et al., 2010, p. 773; see also Fontaine et al., 2008). The conjunction and differences between values on the individual level and cultural, societal or institutional level is the subject of the next section. There is one more aspect of Schwartz's value theory to be addressed that is significant for the further course of reasoning in this thesis.

As repeatedly mentioned in this chapter, in terms of the interplay between cognitive, affective and behavioural components inherent in the concept of value, Schwartz's main linking element

[2] The problem of dilemma situations has also been discussed by other thinkers on ethical grounds (e.g., Berlin, 1969; Crowder, 1994; Railton, 1992).

in the value-behaviour relation is motivation. Values as a motivational driver for behaviour have been discussed throughout this chapter. However, there are other linking processes Schwartz mentions that seem fruitful for the purpose of this thesis. This is the process of value activation as values need to first be activated, before affecting behaviour (Schwartz, 2006b, 2012; Verplanken & Holland, 2002). Once "values are activated, they become infused with feeling" (Schwartz, 2012, p. 3). In Schwartz's earlier works, he focuses on the activation of personal norms and identifies four key steps in this process: (1) awareness of adverse consequences (problem awareness), (2) feelings of responsibility for action (ascription of responsibility), (3) identification of actions to relieve needs both of oneself and for the welfare of others (outcome efficacy), and (4) belief in the own ability to provide relief (Schwartz, 1977; Steg & de Groot, 2010). These steps apply likewise to the activation of basic values (Schwartz, 2010).

The discussion in this section refers to Schwartz's theory of basic human values that he developed for value studies on the individual level. This is an important consideration because Schwartz explicitly separates value studies on the individual and cultural level (Schwartz, 2011a, 2011b). Schwartz also developed a theory of cultural value orientations, which will be discussed in the following course of this chapter. The study of individual values and cultural values refer to different levels of analysis (Schwartz, 2006a, 2011b). Studies on individual values, even across cultures, target a different level of values than studies on value orientations that characterise a society (Schwartz, 2011a). Links and overlaps between individual and cultural values are evident, such as in Kluckhohn's value approach. However, the study of values at the societal level, or other levels of collectives, requires further consideration of group dynamics, which is the focus of the next sections.

1.6. Culture and values

1.6.1. Hofstede's cultural dimensions theory

A classic work on cultural values is Geert Hofstede's theory of cultural dimensions and associated study on international differences in work-related values (Fontaine et al., 2008; Schwartz, 1992; Taras et al., 2010; Thomas, 2008). Hofstede conducted two subsequent large-scale research projects with a focus on differences between cultures (Hofstede, 1998). The first project involved research on cross-national differences in what he refers to as 'mental programmes' within one multinational corporation. For this project, Hofstede used data from employee surveys undertaken in 1968 and 1972 in the IBM Corporation in forty countries, which included a questionnaire about the employee's attitudes and values. The second, later research project (1985-1986) focused on cultural differences between organisations within the same country (Hofstede, 1998, 2010). Here, Hofstede conducted surveys among both employees and managers from twenty business units of different corporations in Denmark and the Netherlands (ibid.). The objective of this second research project was to "assess the relative weight of similarities and differences within the range of cultural differences that can be found in practice" (Hofstede, 1998, p. 481). Given these two different approaches, in which culture is considered either as national culture or organisational culture, it is clear that Hofstede draws on a rather broad culture concept during work related value investigations.

The crux of Hofstede's theory lies in the idea of mental programming to which both the concept of value and the concept of culture are key elements (Hofstede, 1980b, 2001). With reference to Kluckhohn, Hofstede defines value as "a broad tendency to prefer certain states of affairs over others" (1980b, p. 19), which applies to the individual as well as the collective. Another similarity to Kluckhohn is the distinction between the 'desired' and the 'desirable'

(Hofstede, 1980b, 2010). Contrary to Kluckhohn, however, Hofstede considers both terms as related to value, but they present "values of two different natures" (1980b, p. 19). The desired is what one truly desires, actually and personally, whereas the desirable refers to what he or she believes is right to desire and should be desired (Hofstede, 2010). Both natures can set norms in a collective. The desired can determine norms in a group in a statistical manner, representing what is actually desired by the majority. The desirable, in its inherent normative nature, is comparable to ideology on the collective level (Hofstede, 1980a).

In line with Hofstede's idea of mental programming, culture is defined as "the collective programming of the mind" (1980b, p. 21), by which members of a group can be identified but also distinguished from other groups. Culture is a collective phenomenon that is learnt by people within the same social environment (Hofstede et al., 2010). What people learn are the "unwritten rules of the social game" (ibid., p. 6). However, through their lives, people interact in various social environments and usually belong to multiple social groups at the same. Therefore, mental programming varies for every individual, depending on the social environments people grow up in and experience later in life. Beside culture, there are two more factors that influence mental programming: human nature and personality (Figure 1.3). Human nature refers to certain universal features inherited by every human being such as emotions, needs, consciousness and social interactions. Personality, on the other hand, is unique to each individual and can be both learned and inherited (Hofstede et al., 2010; Hofstede, 1980b).

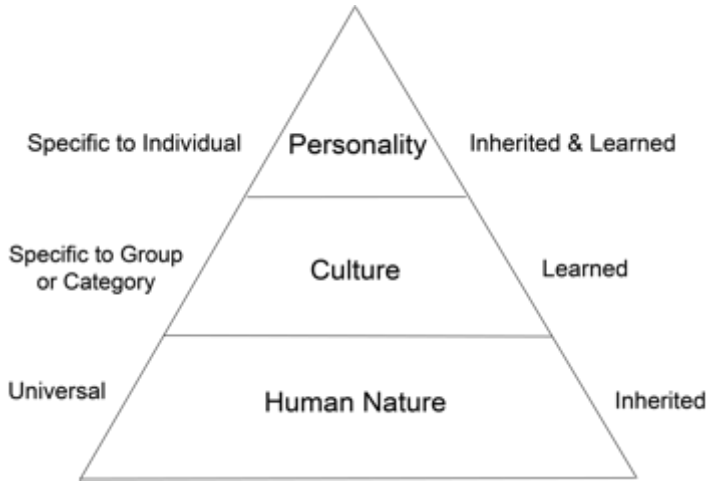

Figure 1.3: Three levels of uniqueness in mental programming (Hofstede et al., 2010, p. 6)

Hofstede (2001) acknowledges that culture manifests itself in many ways, and classifies four categories in which manifestation of culture occurs: *symbols*, *heroes*, *rituals* and *values* (see also Hofstede, 2010). Symbols, heroes and rituals can be summarised as *practices*.[3] What Figure 1.4 demonstrates nicely is how values are at the very core of culture and thus form "the building blocks of culture" (Hofstede, 1980b, p. 19). However, because values are deeply rooted in culture, they are not visible at the surface. Manifestation of culture is only observable through practices, which are built around values and form the skin of onion-diagram illustrated

[3] In Hofstede's theory of cultural dimensions, symbols refer to certain words, gestures, pictures or objects that hold a specific meaning in a given culture, which is only recognisable by members of that culture who are familiar with the symbolic meaning. Heroes are certain living or historic persons who embody specific characteristics that are highly respected in a culture and hence represent models for behaviour. Rituals present collective actions that are considered essential in a culture, but, objectively speaking, do not actually contribute to the desired ends of the group (Hofstede et al., 2010).

in Figure 1.4. As such, culture is also recognisable to non-members, but the cultural meanings of practices are only accessible to members of the culture (Hofstede et al., 2010).

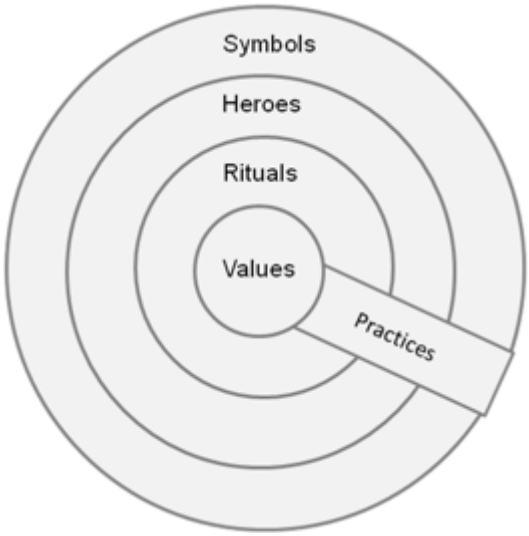

Figure 1.4: The "Onion": Manifestation of culture at different levels of depth (Hofstede et al., 2010, p. 8)

In its manifestation, culture becomes a thing in its own, with its own inner logic (Hofstede, 1980b). This is an important point and also refers to Schwartz's emphasis on the separation of individual values and values at the cultural level. "Culture determines the uniqueness of a human group in the same way personality determines the uniqueness of an individual" (Hofstede, 2001, p. 10). As such, culture and individuals are two different things (Hofstede, 1980b).

Based on his cross-cultural value study using the IBM data, Hofstede identifies four analytical dimensions on which cultural influences are evident in a person's mental processes on the national level: (1) Power Distance (large versus small), (2) Uncertainty Avoidance (strong versus weak), (3) Individualism versus Collectivism, and (4) Masculinity versus Femininity (Hofstede, 1998). Later, in collaboration with other scholars, Hofstede integrates two more dimensions into his original model (Hofstede, 2011). A fifth dimension labelled 'Long Term versus Short Term Orientation' is based on the dimension 'Confucian Work Dynamism', first identified by Bond et al. (1987) (see also Franke et al., 1991; Hofstede, 1998, 2011). Inspired by the work of Minkov (2007), the fifth dimension was later modified, and a sixth dimension 'Indulgence versus Restraint' was added (Hofstede & Minkov, 2010; Hofstede, 2011; Minkov & Hofstede, 2010). Table 1.4 summarises all six dimensions by their definition provided by Hofstede (2011).

Despite being popular, Hofstede's theory received a lot of criticism (e.g., Ailon, 2008; Javidan et al., 2006; Kirkman et al., 2006; Taras et al., 2010; Triandis, 2004). Particular points of criticism included an insufficient number of dimensions, old and therefore obsolete data, or blending of cultures due to processes of globalisation, migration and new technologies (Hofstede, 1998, 2011). The latter involves a questioning of the adequacy of using states as analytical units for cross-cultural comparisons (Minkov & Hofstede, 2011). The notion of national culture ignores variations due to existing regional, ethnic or other subcultures within a state, while cultural boundaries of such subcultures may lie outside national borders (Minkov & Hofstede, 2011; Taras et al., 2010). However, beside those controversies, Minkov and Hofstede (2011) claim the distinguishability of national cultures is empirically verifiable.

Table 1.4: Hofstede's cultural dimensions and definitions (Hofstede, 2011, p. 8)

Dimension	**Definition**
Power Distance (high degree vs. low degree)	Related to the different solutions to the basic problem of human inequality
Uncertainty Avoidance (strong vs. weak)	Related to the level of stress in a society in the face of an unknown future
Individualism vs. Collectivism	Related to the integration of individuals into primary groups
Masculinity vs. Femininity	Related to the division of emotional roles between women and men
Long Term vs. Short Term Orientation	Related to the choice of focus for people's efforts: the future or the present and past
Indulgence vs. Restraint	Related to the gratification vs. control of basic human desires related to enjoying life

1.6.2. Inglehart's theory of intergenerational value change and postmaterialism

Another influential work on values in a cultural context, is Ronald Inglehart's theory of postmaterialism (Datler et al., 2013; Newman, 2002; Schwartz, 2006a). Although not explicitly defining his understanding of value, Inglehart uses the term consistently in the context of human needs (e.g., Inglehart, 1971, 2008; Welzel & Inglehart, 2010). Culture is defined as "a system of basic common values that help shape the behavior of the people in a given society" (Granato et al., 1996, p. 608). The focus in Inglehart's work is on societal value changes throughout generations. Special importance is attributed to an aspect Hofstede does not consider in his first four dimensions, but which is included in the later added dimension 'Long-Term vs. Short-Term Orientation': economic growth (Hofstede, 2011).

The phenomenon of shifting values, Inglehart (2000, 2008) finds particularly obvious in Western European countries when post-World War II generations became dominant. Perhaps the most striking example was West Germany, whose economy recovered and grew rapidly in the 1950s, followed by a large student protest movement in the late 1960s and politically influential green movement in the 1970s and 1980s. Inglehart (1971) hypothesises that economic development and increase in prosperity lead to significant long-term social and political changes of a society. Such societal transformations result from a fundamental change in priorities among values of members of the society, which Inglehart identifies as a shift from materialism to, what he calls, postmaterialism (Inglehart & Abramson, 1994; Inglehart, 1977, 1997). Materialism signifies the focus on the security of existential (economic and physical) needs. Feeling such needs secured, postmaterialism, then, emphasises "quality-of-life, environmental protection, and self-expression" (Inglehart & Baker, 2000, p. 21).

The hypothesis that economic development initiates long-term cultural change is supported by results of the World Value Survey (WVS)[4], in which Inglehart and colleagues were involved. However, the results reveal certain persistent and culturally distinctive traditions that are generally referred to as a society's specific imprint of its cultural heritage (Inglehart & Baker, 2000). Based on these findings, two key value dimensions for cross-cultural variations are

[4] The WVS is a coordinated series of international value surveys conducted by a global network of social scientists, http://www.worldvaluessurvey.org/index_html

derived: (1) traditional versus secular-rational, and (2) survival versus self-expression (Inglehart & Baker, 2000; Inglehart, 2006, 2008). The polarising values *tradition* and *secular-rational* of the first dimension are defined as follows:

> "*Traditional values* emphasize the importance of religion, parent-child ties, deference to authority and traditional family values. People who embrace these values also reject divorce, abortion, euthanasia and suicide. These societies have high levels of national pride and a nationalistic outlook."[5]

> "*Secular-rational values* have the opposite preference to the traditional values. These societies place less emphasis on religion, traditional family values and authority. Divorce, abortion, euthanasia and suicide are seen as relatively acceptable."[6]

The second dimension is linked to the shift from an industrial society (materialism) to a post-industrial society (postmaterialism). Consequently, polarising values are survival and self-expression values (Inglehart, 2006, 2008). The WVS defined values of the second dimension as follows:

> "*Survival values* place emphasis on economic and physical security. It is linked with a relatively ethnocentric outlook and low levels of trust and tolerance."[7]

> "*Self-expression values* give high priority to environmental protection, growing tolerance of foreigners, gays and lesbians and gender equality, and rising demands for participation in decision-making in economic and political life."[8]

Using the WVS data, Inglehart and Welzel (2005, 2010) created a global cultural map along these two dimensions. In a revised version of Inglehart's original theory – that economic development leads to systematic changes in a society – Inglehart and Welzel postulate "that rising levels of existential security are conducive to a shift from traditional values to secular-rational, and from survival values to self-expression values" (2010, p. 553). But, as mentioned above, there are other components shaping societal values beside the state of the economy.

Figure 1.5 shows cultural variations among fifty-four societies that reflect both societies' economic and socio-cultural histories. It highlights the cultural clusters Inglehart and Welzel identify – partly adopted from Huntington (Huntington, 1993, 1996; see also Inglehart, 2006). Similar to Hofstede, Inglehart and Welzel analyse cross-national differences using the state as unit of analysis; and just like Hofstede, Inglehart and Welzel admit the controversy associated with such national-level mean scores and acknowledge intra-national differences (Inglehart & Welzel, 2010). Empirically, however, they claim: "Basic values vary far more *between* societies than within them" (Inglehart & Welzel, 2010, p. 554) – which effectively supports Hofstede's concept of national cultures.

[5] cited from the WVS website: http://www.worldvaluessurvey.org/WVSContents.jsp - accessed: 13/06/2014
[6] ibid.
[7] ibid.
[8] ibid.

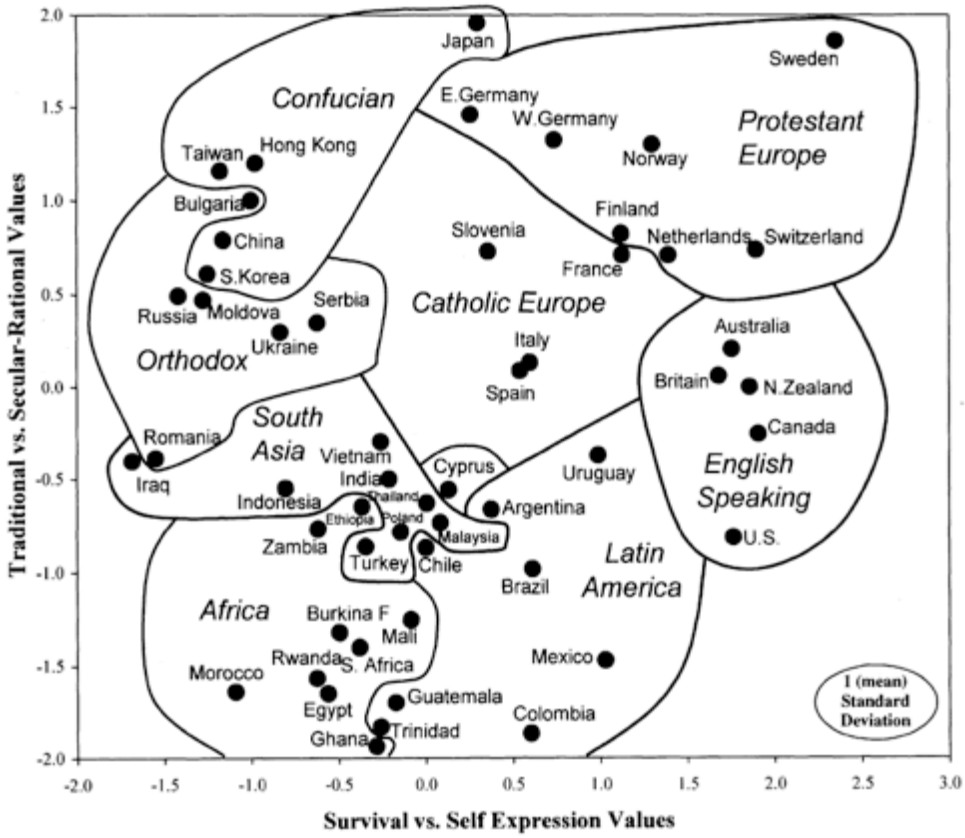

Figure 1.5: Inglehart and Welzel's global cultural map and locations of 54 societies based on WVS data 2005-2007 (Inglehart & Welzel, 2010, p. 554)

1.6.3. Schwartz's cultural value theory

Alongside his theory on basic human values, Schwartz developed a theory of value applicable to the study of the cultural systems of societies.

As in the theory of basic human values for the individual level, Schwartz approaches his theory of cultural value on the grounds of existing ideas, including Hofstede's and Inglehart's culture concepts (Schwartz, 2006a, 2011a). In agreement with Hofstede and Inglehart, Schwartz sees a society characterised by its prevailing cultural values (Schwartz, 2014b). The focal point for the study of cross-cultural variations on the national level are the normative cultural value orientations underlying and justifying the functioning of societal institutions (Schwartz, 2011b, 2014a).

Contrary to Hofstede and Inglehart, who developed their culture dimensions based on empirical data, Schwartz (2006a, 2009, 2011b) identifies seven distinctive cultural value orientations based on *a priori* theory that he then tested against empirical data (Figure 1.5). Adapting the Kluckhohns' approach, Schwartz derives cultural value orientations from three common societal problems. First, boundaries between the group as a whole and the individuals included have to be defined to allow a balanced relationship between both. Second, a system to coordinate goods and services produced by individuals is needed in order to preserve the social fabric. Finally, the use of human and natural resources has to be regulated (Schwartz, 2011b). For each of these problems, exist two opposing idealised responses, which result in the three bipolar dimensions of culture presented in Figure 1.5. The first problem can be addressed on a scale from *Autonomy* to *Embeddedness*. Autonomy, however, can be manifested in two different ways: *Intellectual Autonomy* and *Affective Autonomy*. Responses to the second

problem can range between *Egalitarianism* and *Hierarchy*, and between *Harmony* and *Mastery* for the third problem (Schwartz, 1999, 2006a, 2011b). Together, those idealised responses represent seven cultural value orientations. Societies are arrayed between the bipolar value orientations on each dimension according to their value emphases (Schwartz, 2011b).

Table 1.5: Schwartz's seven cultural value orientation (Schwartz, 2011b)

Societal Problem	Cultural Value Orientation	Definition
Boundaries and relation between the individual and the group	Intellectual Autonomy	encourage individuals to pursue their own ideas and intellectual directions independently
	Affective Autonomy	encourage individuals to pursue arousing, affective positive personal experience
	Embeddedness	treat people as entities embedded in the collectivity; emphasise maintaining the status quo and restraining actions that might disrupt in-group solidarity or traditional order
Coordination and preservation of the social fabric	Egalitarianism	urge people to recognise one another as moral equals who share basic interest as human beings; socialise people to internalise a commitment to cooperate, to feel concern for the welfare of all and to act voluntarily to benefit others
	Hierarchy	rely on hierarchical systems of ascribed roles to ensure responsible, productive behaviour; define the unequal distributions of power, roles and resources as legitimate and even desirable
Usage of human and natural resources	Harmony	emphasise fitting into the social and natural world, accepting, preserving and appreciating the way things are; discourage efforts to bring about change and encourage maintaining smooth relations and avoiding conflict
	Mastery	encourage active self-assertion by individuals or groups in order to master, direct and change natural and social environment and thereby to attain group or personal goals; emphasise the desirability of active, pragmatic problem-solving that can produce 'progress'

Despite differences in approaches and foci on cultural values, there are some overlaps between value dimensions developed by Hofstede, Inglehart and Schwartz. In the following, the three theories of cultural values presented in the previous section will be discussed in comparison to the aim of grasping values in the broader, cultural context.

1.6.4. Hofstede, Inglehart and Schwartz in comparison

Similarities between cultural dimensions identified by Hofstede, Inglehart's and Schwartz have been recognised by the researchers themselves. Hofstede (2011) mentions correlations between Inglehart's *survival* versus *self-expression* values and a combination of Hofstede's *Masculinity* and *Individualism*. Also, Inglehart's *traditional* versus *secular-rational* values correlate

negatively with Hofstede's *Power Distance* dimension (ibid.). Inglehart (2006) confirms parallels between his *self-expression* values and Hofstede's *Individualism*, but also makes the link to Schwartz's *Autonomy* value orientation. Inglehart claims all three concepts (self-expression, individualism and autonomy) share an emphasis on free choice, which, therefore, represents a common dimension that has proven to be robust throughout the different studies of the different researchers (ibid.).

Since Schwartz's classification of cultural value orientations is the most recent one and incorporates ideas of both Hofstede and Inglehart, Schwartz's classification has been used as a basis to compare cultural value orientations between the three theories in the present thesis. Table 1.6 shows similarities, although no exact matches, between Schwartz's cultural value orientations and those of Hofstede and Inglehart. Common ground between Inglehart's *self-expression* values, Hofstede's *Individualism*, and Schwartz's *Autonomy* has been already mentioned. *Affective Autonomy*, however, seems closer to Hofstede's *Indulgence*. The pursuit of arousing, affective positive personal experiences also includes the aspect of enjoying life, which relates to the definition of Indulgence in seeking gratification. *Embeddedness*, as the counterpart to Autonomy, is similar to Hofstede's *Collectivism*, but corresponds with Inglehart's *traditional* values rather than *survival* values. The focus on the collective and the maintenance of existing conventions are two characteristics of Embeddedness. The dimension of *Egalitarianism* versus *Hierarchy* is comparable to Hofstede's *Power Distance*. Egalitarianism reflects low degree, and Hierarchy high degree, of Power Distance, while Inglehart's *traditional* versus *secular-rational* dimension only relates in terms of the authority aspect. Schwartz's *Harmony* versus *Mastery* dimension includes an aspect that was considered neither by Hofstede nor Inglehart: the relationship between human beings and nature. This dimension, however, is of particular importance in respect to this thesis' objective to examine human connections with Antarctica on the basis of values and is discussed in the following chapter.

Table 1.6: Similarities between Schwartz's cultural value orientations and cultural value orientations identified by Hofstede and Inglehart

Schwartz's cultural value orientations	**Hofstede's cultural value orientations**	**Inglehart's cultural value orientations**
Intellectual Autonomy	Individualism	Self-expression
Affective Autonomy	Indulgence	Self-expression
Embeddedness	Collectivism	Tradition
Egalitarian	Low degree power distance	Secular-rational (in terms of authority)
Hierarchy	high degree power distance	Tradition (in terms of authority)
Harmony	(neither Hofstede nor Inglehart consider the human relationship with nature)	
Mastery		

In terms of the general concept of culture and values, Schwartz started recently an interesting discussion, questioning the idea of "cultures as shared meaning systems in which values play a central role" (Schwartz, 2014a, p. 5). This is a challenging point, considering that theories discussed so far in this chapter identified cross-cultural differences based on value variations between groups, which implies that a group shares certain values. Schwartz raises this point in the context of research findings that suggest the opposite of what Hofstede and Inglehart had empirically shown, namely that values within a country vary much more than values between

countries (Fischer & Schwartz, 2011). Therefore, the key question in Schwartz discussion is nature of the relationship between individual values and cultural values.

Schwartz defines cultural values as "a hypothetical, latent feature of societies (or groups), a normative system that is independent of individuals and is not located in their minds" (2014b, p. 42). A key word in the definition is the word latent. Schwartz introduces the term "value culture", which is manifested in society and its institutions. The latent value culture refers to the prevailing emphases in value orientations in a society and represents a value system of its own right with its own dynamics, which is not directly linked to individuals. The last part in Schwartz's definition is a reference to Hofstede, who also stresses the distinctness of culture and individuals. Schwartz argues that cultural values are not located in people's minds, as Hofstede's notion of *programming of the mind* implies, but are located at the institutional level (Schwartz, 2014a, 2014b).

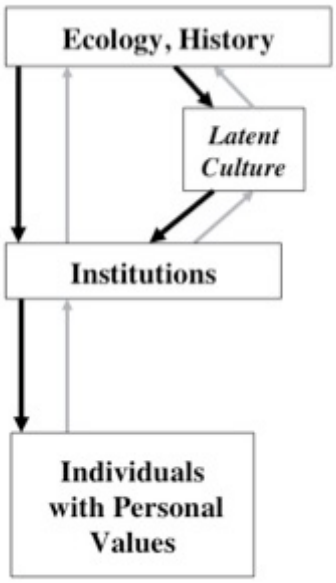

Figure 1.6: A schematic representation of the relationship between latent cultural values of a society and its institutions, and the values of individuals (adapted from Schwartz, 2014a, p. 8)

The societal value culture is manifested in the various socio-cultural institutions in a society (e.g., families, schools, private corporations, governmental departments, etc.), but depending on the type and function of the institution, the overall value culture becomes specialised. As such, institutions, which primarily communicate value culture to individuals interacting with them, only mediate modified versions or effects of the overall value culture (Figure 1.6). Institutions, on the other hand, have a significant impact on individuals (Schwartz, 2014a). The influence of institutions on individuals goes as far as affecting individual values, beliefs, worldviews, and behaviour, for which reason Schwartz suggests rephrasing Hofstede's metaphor into culture as the "'programmer' of the mind" (Schwartz, 2014a, pp. 6–7).

Individuals, on the other hand, also come with various circumstances, conditions or preferences, for which each individual interacts – either directly or indirectly – with a unique set of institutions. The wide range of variables involved in the relationships between institutions and individuals in a society, necessarily leads to a unique cultural influence on every individual (Schwartz, 2014a). Against this background, high variation of individual values within a society can be explained without negating the existence of cultural values. Schwartz argues that individuals seem to be more strongly and directly influenced by multiple and more proximate subcultures than an overarching value culture (Schwartz, 2014b). This point will become important again in the further course of this thesis when discussing institutions at an international level and is particularly relevant for the Antarctic case study.

Schwartz's theory on cultural values has been criticised for its culture concept being reduced to value variations between states or the theoretical model (Figure 1.6) being static and underplaying value conflicts and change in a society (Morris, 2014; Schwartz, 2014b). Despite the high variation in value emphases between individuals, Schwartz's research results, in line with Hofstede's and Inglehart's studies, still show substantial coherence in value emphases within a society, because of which all three researchers justify their approaches (Schwartz, 2014b). However, the criticism neglecting other aspects of culture aside from value emphases is also justified. It should be acknowledged that Schwartz's research, in particular, focuses on value systems specifically, but he also tries to consider other factors that have an impact on culture. Figure 1.6 includes exogenous, labelled as *Ecology, History*, influencing all three levels of the model (value culture, institutions in a direct way; individuals indirectly through

institutions). Reciprocal effects between the different levels – although, suggesting a much stronger top down influence – are also considered (grey arrows in Figure 1.6) to indicate a dynamic model, open to change (ibid.). However, random factors that lie outside of the system (such as natural disasters, but also individuals who interact outside any societal institution) are not clearly visible in Schwartz's model.

In terms of relations between external factors, an overarching value culture and institutions in a society, Schwartz's model is basically a repetition of the culture concept Hofstede developed in his earliest publications (1980a, 1980b). Figure 1.7 shows Hofstede's schematic model of how cultural patterns stabilise over generations and demonstrates a system that is, what Hofstede describes as a "homeostatic (self-regulating) quasi-equilibrium" (1980b, p. 23). As such, individuals are not included in the model; the focus is on the momentum of culture as an independent entity.

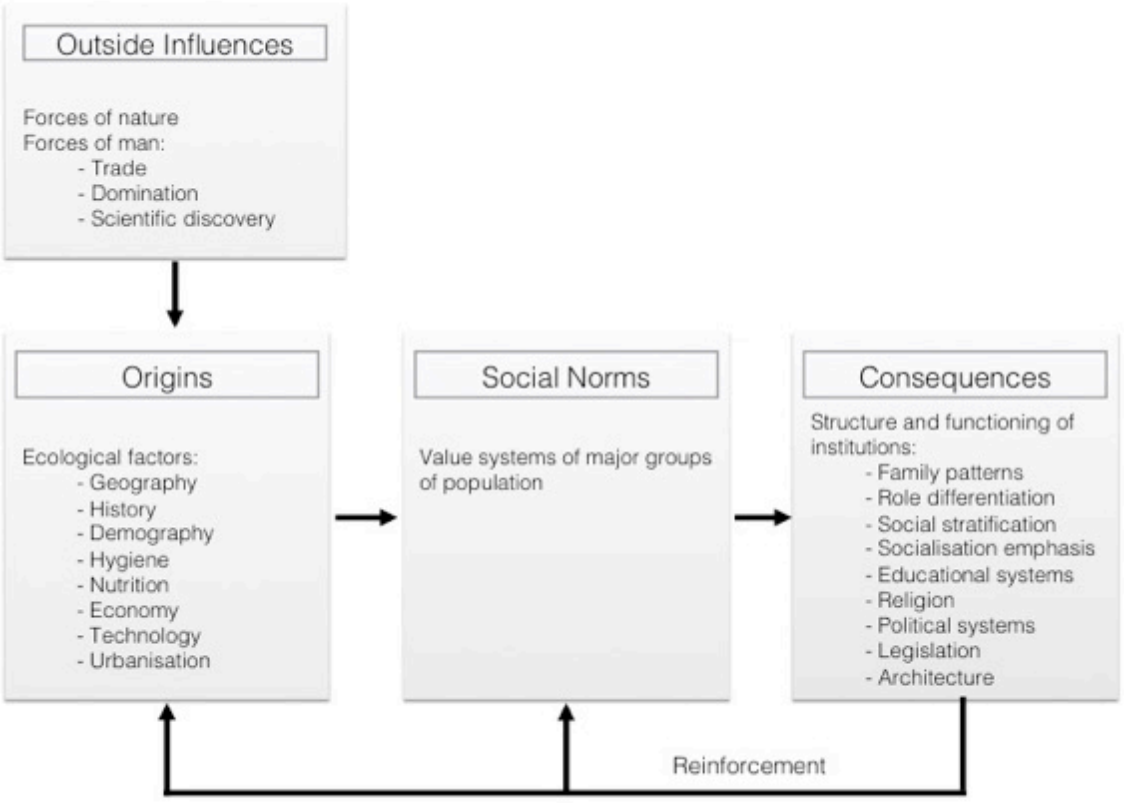

Figure 1.7: Stabilising system of cultural patterns after Hofstede (1980b, p. 34)

Exogenous factors in Figure 1.7 are distinguished as *outside influences* and a number of ecological variables Hofstede summarises as *origins*. Outside influences refer to external factors, which lie outside the societal system and can include unexpected events such as natural disasters, war, breakthrough scientific discoveries or pioneering (technological or societal) inventions. In particularly drastic events, external factors may impact societal norms directly, otherwise their influence is indirect by changing conditions for ecological variables (Hofstede, 1980b). The crux of the system, shown in Figure 1.7, is the feedback mechanism, through which societal value systems and institutions influence ecological variables. Reciprocal influences between societies and nature are another point that is further discussed in Chapter 2.

1.7. Defining 'value

Hitherto, this chapter represented a collection of influential thoughts on value theory from different disciplinary perspectives in the social sciences and humanities. This section focuses on the development of a working definition of value guiding the analysis and discussion throughout the present thesis. In the discussions of the theories presented above, some links between these theories have already been emphasised. The following summarises and discusses key features highlighted by the theories to conclude with a working definition of value used in this thesis.

Despite the plurality of value definitions, there are some basic characteristics about the term value that all the presented theories seem to agree on. Above all, value itself is inherently intangible. Whether it is defined as a concept (Kluckhohn), belief (Rokeach), interest (Perry), goal (Schwartz) or a tendency to prefer one thing over another (Hofstede), it always refers to a thing of the mind. Adopted from the ancient times, the concept of value concerns most basic questions that give human beings meaning to life, such as *what is good?* – both in itself or for something else – and *what is desirable?* Consequently, in seeking an answer to these questions, the concept of value includes a judgement. This point demonstrated severe challenges for value theory in terms of the quality (i.e. absolute versus relative validity) and the verifiability of value judgements.

Regardless of what it is that is considered the good and desirable, there seems to be an agreement about the fact that 'it' becomes a directing goal for human life. This, in turn, releases motivation to attain this goal. In the theories discussed above, such a goal was referred to as a value. However, it was also assumed that a person could have more than one life-directing goal. Thus, values occur in plurality. In their plurality, values are related to and interact with each other. The nature of such relationships may also include rivalry between values, for values can also compete with each other. Here, questions of *what is good?* and *what is desirable?* turn into *what is better?* and *what is more desirable?* – always comparing between values. In this context, another component of value theory comes into play: preferences. Preferences derive from rational and irrational sources. All theories discussed above acknowledged that values are neither solely affective nor entirely rational, but always combining both elements. Cognition was further stressed as presupposing rational and emotional value bonds. One can only value what one is aware of. Relationships between values are not random but systematic. Whether value systems are organised by hierarchical order (Rokeach) or similarities between value-based motivational goals (Schwartz), the key is the prioritisation of related values.

This chapter focussed on value as a behavioural subject-matter. The theories discussed above stress values as human drivers for action. Values are described as relational, able to connect with all kinds of objects or situations. Generally, values are understood as something deeply rooted in every human being; a fundamental human function that affects the way people feel about things, the way they think about things, how they perceive the world around them and as a whole, their decisions and actions. In short, values are involved in all human phenomena.

However, because values are deeply rooted, they are not directly observable. The theorists and empiricists cited in this chapter approach values through their manifestation in human behaviour. Directly observable human behaviour includes the way people talk and their overt actions. Value manifestation can be inferred from behavioural patterns as well as similarities and differences between such patterns. For the intra- and cross-cultural comparisons of behavioural patterns, the concepts of universal values (Kluckhohn, Rokeach), or basic human values (Schwartz), were introduced as required reference points for such comparisons. These concepts are grounded in features common to all human beings and collectives, represented in basic problems of human nature and human co-existence, allowing basic human values to be

universally recognised. Variations occur due to different degrees of importance ascribed to each basic human value.

The theories discussed in this chapter also use values to explain human behaviour. It is clear, however, that human behaviour is not solely influenced by values, but that it represents a complex system with various elements. Every value study that aims to either identify values based on human behaviour or explain human behaviour based on values requires a solid understanding of the taxonomy of the dependencies underlying the psychological mechanisms triggering certain behaviours. Rokeach and Schwartz discuss a number of behaviour-influencing elements aside from values including beliefs, attitudes, norms or traits. Hofstede considers cultural influence through values and practices in a society. These scholars agree that values are the most stable among behaviour-influencing elements even though values are still adaptable to changing circumstances. For any collective, values themselves gain a normative feature, from which ethical 'ought to' or 'should' statements arise. This aspect was stressed as crucial for social order. Social norms and cultural value orientations seem too closely related to distinguish between the two concepts. From a values perspective, a key question is: *what is good/desirable for oneself and others?* Critical for value studies is the aspect of learning and understanding how much influence social and natural environments have on values on an individual. Further, Rokeach, Schwartz and Hofstede argue the influence on individuals gradually increases with age. Interestingly, the question whether this trend changes at later stages of life was not addressed. The course of life and the experiences and contacts one makes along the way are unique to every individual. But personality is also considered a significant factor in shaping a person's value system. What this person experiences and learns over the years, however, may influence personality as well.

In the context of a collective, values present a major challenge for value theory and value studies in terms of the interplay between individuals and the group as a whole. On the societal level, prevailing emphases on value orientations develop their own dynamics and value systems with measurable, but non-uniform impact on individuals. Hofstede, Inglehart and Schwartz supported the assumption that cultural groups are characterised by their societal value system, which define differences between them. However, value systems are based on the relationships between societies, their institutions and individual members, where all the three value levels influence each other. External events can be another influential factor. Random external events are particularly interesting regarding the aspect of value change, as they are unexpected and can cause significant irritation to the system. In this case, dynamics of change within the three levels (individual, institutional and societal) may be detectable.

For the purpose of the present thesis, values are defined as internalised codes that affect behaviour and include judgements on what is good and desirable. Defining values as "codes" is a reference to Hofstede's "programming" metaphor. These value codes, similar to genetic codes, are unique to every individual, but, at the same time, carry cultural imprints in the sense that related individuals have more similar codes than non-related individuals. Relations include affiliations with a group, organisation or society. Value codes are also closely linked to emotions and cognition. Personality and learning processes influence value codes over time. Therefore, value codes are dynamic and capable of adaptation if variables change. The basic value questions *what is good?* and *what is desirable?* (including the modified versions), are inherent in the definition. So are judgements, which are required to define the good, desirable, and consequently life directing goals, but which are based on value codes.

2. Values in Context: The Environment, Human Behaviour and Policy

Values have been discussed so far as drivers of human behaviour. As such, the focus was on the concept of value and the role that values play in societies and the life of individuals in general. This chapter addresses values in the context of the environment. The protest movements of the 1960s and 1970s and the rising awareness of an environmental crisis are taking as a starting point to discuss the question of the value of nature. As indicated in the previous chapter, this question also touches on the human relationship to nature, which is linked to the thesis' overarching question of human connections to a specific environment such as Antarctica. Key concepts in environmental ethics are introduced that are also relevant to Antarctica. In the course of this chapter, implications of a moral consideration of nature and the perception of an environmental crisis for human interactions with nature are addressed, both on the individual and the policy level. Interaction with nature, including individual environmental behaviours, collective actions and policy, are discussed on a theoretical basis. In the discussion, the value focus is expanded to related theories that deal with human interactions with the environment and policy-making – with particular attention paid to links between theories.

2.1. Environmental Ethics

Values have been considered solely from a human-centred perspective in the previous chapter. Environmental ethics widens the view on value questions by incorporating the non-human sphere (Boylan, 2014; Brennan & Lo, 2009; Keller, 2010). For the present thesis, environmental ethics is considered in the historic, socio-cultural context from which it arose. Environmental ethics, as a new philosophical sub-discipline, was established in the early 1970s in the heat of theoretical discussions around inherently ethical questions about human interactions with the environment (Brennan & Lo, 2009). Discussions arose out of major protest movements against existing systems in Western societies in the 1960s and 1970s, and were driven by an ethical rethinking of social order and the environment. Chapter 1 mentioned the aspect of value change and societal impacts of wide-scale changes in value orientations (Inglehart & Baker, 2000; Inglehart, 2000). The extent of the 1960s/70s movements evoked significant social and political changes, but also an "environmental turn" (Rolston III, 2003, p. 517).

The environmental turn refers to both the application of ethics to non-human entities and a sudden increase in interest in this subject – measured by academic publications (ibid.).[9] Fundamental for environmental ethics is the critique of anthropocentrism, the human-centred view on the world, which was characteristic for moral philosophy in the Western tradition (Brennan & Lo, 2009; Keller, 2010). Consequently, environmental ethics reflects on the nature and its non-human content, human beings and their place in nature. Key questions of environmental ethics address the nature of human beings, of nature, of the human relationship to nature and the moral question of how human beings should be related to nature (Keller, 2010).

[9] Important to note is that this 'environmental turn' has to be perceived in the context of Western societies, as it does not represent a universal development (Guha, 1989). Ideas about human beings, nature and their relationship vary with different cultural contexts, and some of the evolving "new" ideas that lead to environmental ethics as an academic field were already well established in other cultures (ibid.).

2.1.1. Environmental crisis

The social movements of the 1960s and 1970s may have provided the lobby for environmental ethics to become popular and an academic discipline, but the basic ideas existed before. A much-cited work, which is considered a classic in environmental ethics, is Aldo Leopold's essay *The Land Ethic* in his book "A Sand County Almanac", first published in 1949. The crux of this essay is that the community concept includes *the land*. The land is used in generic terms for all natural elements and non-human living beings that exist in one place, including the soil, water, plants, and animals. The main argument in Leopold's essay is that the land and its resources are not the property of human beings, but integral parts of the community. To illustrate this idea, Leopold uses the metaphor of a land pyramid (or biota pyramid), which is a symbolic energy circle linking all life on Earth. The soil represents the foundational bottom layer of the pyramid and the "fountain" of the energy circle (Leopold, 1987, p. 216), while human beings sit at the top of the pyramid. The pyramid illustrates the point that it is for the well-being of the whole community that human beings promote the preservation of the land. Moreover, Leopold argues that human beings have an ethical relationship to the land (Leopold, 1987). To this day, Leopold is frequently quoted with the following statement:

> "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise." (1987, pp. 224–225)

From this *Land Ethic* perspective, theorists and political activists started ascribing to Western societies an environmental crisis (Bookchin, 2014; Rolston III, 2003; White, 1967). The perception of an environmental crisis is still present today (Brennan & Lo, 2009). Generally, the crisis refers to an unsustainable relationship between human development and ecological systems, in the sense that human development destabilises ecological systems. The ethical source of the environmental crisis, however, was seen in anthropocentrism (ibid.).

According to Brennan and Lo (2009), there are four philosophical theories[10] that originally stated the existence of an environmental crisis, but deduced the crisis from different ideologies supporting anthropocentrism. All theories follow the same logic in their diagnoses of the environmental crisis:

> "(1) X leads to anthropocentrism,
>
> (2) anthropocentrism leads to environmentally damaging behaviours;
>
> therefore (3) X is the origin of environmental crisis." (Brennan & Lo, 2009, p. 39)

White (1967) sees the source of the environmental crisis (X) in Judæo-Christian monotheism, which supports the vision of human beings being superior since they were created in the image of God (see also Brennan & Lo, 2009). Ecofeminism referred to X as being caused by patriarchal worldviews and male chauvinism, which go beyond the oppression of women in also influencing how animals and nature in general are treated (e.g., Collins, 1974; d'Eaubonne, 1974; Warren, 1990). Deep Ecology claims X to be atomistic individualism, a view of human individuals as isolated beings (Brennan & Lo, 2009, p. 13). Endorsing "biospheric egalitarianism in principle", Deep Ecology advocates criticise what they called "shallow ecology" for its opposition to pollution and resource depletion merely for the benefit of human well-being (Næss, 1973, p. 95). Instead, Deep Ecology advocates call for a redefinition of the human self that included individuals' rights and responsibilities in their relation to nature (Næss, 1973). Finally, New Animism sees X in the positivism of science and

[10] Judæo-Christian monotheism, Ecofeminism, Deep Ecology and New Animism.

technology, and their "disenchantment" of nature by destroying a human sense of awe and wonder towards nature (Brennan & Lo, 2009; see also Horkheimer & Adorno, 1988).

Another theory that is often associated with the early stages of environmental ethics is Social Ecology (Bookchin, 1980, 2005). Social Ecology emphasises that environmental problems are essentially social problems (Brennan & Lo, 2009). Bookchin (2014) claimed hierarchical regimes of dominance and submission manifested in capitalism as the social source of the environmental crisis. Instead of exploiting nature, human beings – conscious of their natural history – should dedicate their capabilities to the preservation of nature (Bookchin, 2014; Brennan & Lo, 2009).

Against this critique of anthropocentrism and suggestions for alternatives, a non-anthropocentric approach requires a greater appreciation of nature and a sense of human responsibility for nature's well-being. Accordingly, environmental ethics developed concepts that can be applied to *the land*. The most important value concepts in this context are the intrinsic value of nature, wilderness and the aesthetic value of nature.

2.1.2. Nature and intrinsic value

Environmental ethics, as a meta-ethical exercise, raises the question whether nature – including its non-human content – has intrinsic value, and, therefore, is a value in itself (Brennan & Lo, 2009; Keller, 2010; O'Neill, 1992). Environmental ethics is meant to offer a non-anthropocentric value theory (Callicott, 1984). In reviewing ethical theories of the 1960s and early 1970s that environmental ethics initially built on, Keller (2010) distinguishes two schools of thoughts: traditionalists and progressivists. The traditionalists school grounds environmental ethics on traditional (anthropocentric) Western moral categories and normative paradigms, but with the extension to the non-human sphere. In this sense, human moral principles apply to nature – with the consequence that human beings also have responsibilities to nature (Passmore, 1974). Thus, environmental ethics, from the traditionalists' stance recognises rights of all non-human living beings to be, and to not be harmed, and recognises the right of future generations to live in sound ecosystems (Feinberg, 1974; Singer, 2002; Stone, 2010). Progressivists, on the other hand, reject traditional Western ethics completely and pursue a holistic ontology of ecological systems instead (Næss, 1973; Rolston III, 1975). In this approach, environmental ethics are applied to ecological wholes, which include human and non-human biota and abiotic components (Callicott, 1985).

In terms of the value of nature, Keller (2010) identifies five different types of value that were addressed in the reviewed theories. In addition to instrumental value (V1) and intrinsic value (V2), (two concepts that were already addressed in the previous chapter), Keller distinguishes moral value (V3), objective value (V4) and inherent value (V5) (ibid.). Instrumental value refers to something that is good for the sake of some other end, and is distinguished from intrinsic value, which is good in itself. Progressivists believe in an intrinsic value of nature and criticise traditionalists for their anthropocentric thinking in terms of seeing nature as merely instrumental to human well-being (Elliot, 2005; Rolston III, 2006). Keller claims that intrinsic value "presupposes some kind of innate attribute or property that gives an entity value independent of its use-value for other ends" (2010, p. 4). In this sense, it could be argued that nature gains intrinsic value through holding certain properties that make it "worthy of moral considerability" regardless of whether or not it is used (ibid.). Such moral values may not only exist for nature as a whole, but also for its non-human content, including animal and plants (Singer, 2002). The objective value of nature, the claim that nature possesses value independent of being perceived, is considered thoroughly non-anthropocentric (Keller, 2010). Sylvan uses biodiversity as an example for objective value in nature (Sylvan & Bennett, 1994).

However, any claim of objective value is precarious and vulnerable to criticism, because it lies outside empirical verifiability. The assumption that a value can independently prove its existence is a matter of belief or acceptance.

Although most environmental ethicists acknowledge that non-human entities or nature as a whole can be loci of value, opinions diverge about whether or not intrinsic value of nature can exist in the absence of any conscious (human) valuer (Callicott, 1989; Norton, 1994; Rolston III, 1991). On this account, Callicott suggests considering nature as intrinsically valuable "*for* itself" rather than "*in* itself" (1989, p. 133). In other words, it is nature's inherent value that makes it intrinsically valuable to human beings.[11] Keller (2010) summarises the concept of inherent value as a value that is latent to nature and its non-human content. As such, the value exists as a potential but requires a valuing subject to become actual. The valuation arises from nature and its non-human content through human beings, who value non-human nature it for its own sake (ibid.).

Reflecting on the definitions of moral, objective or inherent values, as proposed by Keller, it appears that these 'value types' ultimately aim to justify the intrinsic value of nature. It is not clear, however, how moral, objective or inherent value can represent autonomous value types. All of them are clearly related to the concept of intrinsic value and inherent value characteristics. In the previous chapter, morality was considered in terms of a normative feature inherent in the concept of value. Defining intrinsic value as a value that is good in itself implies that it is good for its own sake. Therefore, the distinction between intrinsically valuable 'for itself' and 'in itself' is rather deceptive. The issue of objectivity versus subjectivity was discussed in the previous chapter as one of the most challenging and perhaps insoluble questions around intrinsic value. However, what the deliberations on value within environmental ethics demonstrate is the difficulty of applying the concept of intrinsic value to physical objects. In the previous chapter, values were generally characterised as a psychological factor, referring to the human mind. Environmental ethics, on the other hand, aspires to a non-anthropocentric way of thinking. Even if non-anthropocentric intrinsic value of nature exists, how will people be able to grasp the substance of such a value?

2.1.3. Wilderness

For an understanding of the concept wilderness, a brief discussion on the definition of nature may provide some introductory thoughts. The terms "environment" and "nature" are often used synonymously (Keller, 2010). Depending on the context, environment and nature can mean very different things, however. Common meanings of nature in philosophy include nature as a collective term for everything, for example nature as the force that makes things as they are, or nature as the innate essence of a thing (Habgood, 2002). Environmental ethics often uses the term nature in reference to an absence of human-made artefacts (Godfrey-Smith, 1979; Keller, 2010). This strict separation does not apply to the notion of the environment. The environment can also refer to so called (human-)built environments, which are distinguished from natural environments (Altman & Wohlwill, 1983).[12] The confrontation between civilisation and nature underpins the idea of wilderness.

Historically, the notion of wilderness underwent a shift from primarily negative connotations, as places that are dark and dangerous, to a very positive image in which wilderness is considered valuable and, as such, something that should be protected (Berleant, 2000; Nash,

[11] Rolston (2010) notes that if human beings are taken as the source for intrinsic value, then the value must be anthropocentric.

[12] Note that build environments may also include parks and open spaces. Therefore, there are no clear boundaries between build and natural environments (Kaplan, R. & Kaplan, 1989).

1976; *The Wilderness Act*, 1964).[13] The Wilderness Act from 1964 under US public law, defines wilderness as follows:

> "A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain."

With reference to growing human population, expanding settlements and technological development, the Act perceives wilderness as an opposite pole to urbanisation and justifies the preservation of wilderness by its instrumental values for human well-being. While highlighting the "outstanding opportunities for solitude or primitive and unconfined type of recreation" (*The Wilderness Act*, 1964, p. 1) that wilderness provides, the Act explicitly mentions scientific (e.g., ecological, geological), educational, scenic, and historical value as potential wilderness values. As such, the Act stresses wilderness as a resource that needs to be maintained for future generations. Some scholars have also discussed benefits humans can derive from wilderness, emphasising mental and physical health (e.g., Kaplan, S. & Talbot, 1983; Kaplan, S., 1995) due to escape from urban stressors and (air and noise) pollution (Mace et al., 2004). In the perception of wilderness as a refuge, Nash (1976) notes that wilderness areas become a public domain, a place for the common good. From this perspective, the value of wilderness is primarily anthropocentric.

A more recent definition of wilderness is provided by the International Union for Conservation of Nature (IUCN), who understands wilderness as a

> "large unmodified or slightly modified area, retaining their natural character and influence, without permanent or significant human habituation, which are protected and managed so as to preserve their natural condition" (Dudley et al., 2013).

The IUCN considers wilderness as a specific type of protected area. According to the IUCN, protected areas are "essential for biodiversity conservation" while having "direct human benefits" (Dudley et al., 2013, p. 2). Beside opportunities for recreation, human beings further benefit from the genetic diversity, religious or cultural sites, and environmental services (e.g., provision of fresh water) wilderness provides. However, different types of protected areas require different management approaches. IUCN suggests six management categories for protected areas. Categories range from strictly protected areas where access is only allowed to few if any people, through National Parks where the conservation of ecosystems is emphasised but visitors are welcome, to much less restrictive approaches where conservation is integrated into human lifestyles or even takes place alongside sustainable use of natural resources. Wilderness areas fall under the first category with the highest protection level (Dudley et al., 2013). The categorisation of different types of protected areas is a management tool that is also used for Antarctica, and will be seen in the next chapter.

The Wilderness Act and the IUCN's management categories for protected areas are two examples of how the idea of wilderness is applied to conservation policies and guidelines. Both examples emphasise the preservation of wilderness areas. In environmental ethics the distinction between the conservation of nature and the preservation of nature is important (Callicott, 1994; Mertig & Dunlap, 2001). Ideologically, nature conservation includes a wise use of natural resources whereas the preservation of wilderness seeks to protect nature from its degradation through human usage of the land (Callicott, 1994). The claim that some natural areas need more protection than others implies a value judgement. In this sense, are highly

[13] Interestingly enough, when the city is metaphorically described as a (concrete or asphalt) jungle, this reference to the wild, again, has the negative connotation of a struggle for survival (Berleant, 2000).

protected natural areas more valuable than less protected natural areas? The wilderness concept seems to suggest such a ranking, as wilderness is also ascribed an intrinsic value (Rolston III, 1985).

2.1.4. The aesthetic value of nature

The aesthetic value of nature usually refers to the notion of beauty (Rolston III, 2002b; Thompson, 1995). Scholars have long debated whether beauty is an intrinsic or instrumental value (e.g., Brogan, 1919; Budd, 2002; Elliot, 2005; Hargrove, 1994; O'Neill, 1992). Moore (1903) tries to argue for beauty being an intrinsic value. Rokeach (1973) also identifies 'a world of beauty' as a terminal value (see Table 1.1 of the previous chapter). Materialism, American pragmatism or modern economic theory based on utilitarianism and positivism, however, are often blamed for having spread the view of nature's beauty as instrumental value by focussing on nature's recourses (Hargrove, 1994; Norton, 2002).

From an environmental ethics point of view, beauty or the aesthetic value of wilderness is much more than pretty scenery (Rolston III, 2002b). Environmental ethics aims to "discover how beauty is a mysterious product of generative nature, an aura of objective aesthetic properties" (Rolston III, 2002b, pp. 137–138). Even though the aesthetic appreciation of nature ultimately emanates from people with relevant aesthetic capacities, the forces of nature need to produce beauty in the first place (ibid.). On ethical grounds, the preservation of wilderness beauty is a moral duty for human beings (Hargrove, 1989; Rolston III, 2002b; Thompson, 1995). Leopold (1987) claims the beauty of the biotic community ought to be preserved.

However, aesthetic value is "often thought to be high level but low priority" (Rolston III, 2002b, p. 127). Whenever basic human needs compete with the preservation of nature, people tend to put their own survival first, and it is hard to argue against this instinct in ethical terms (Attfield, 1998). The aesthetic appreciation of nature obtains particularly low priority because of its perceived lack of practical use (Rolston III, 2002b). Utility is the traditional economic criterion for the assessment of an object's value. The difficulty with utility is that this criterion follows a strictly rational logic. As emphasised in the previous chapter, rationality is only one element of value. Other elements such as the ethical or emotional component of values are not to be underestimated. On this note, an interesting approach including emotional components is the Biophilia Hypothesis, first introduced by Edward O. Wilson (1984). This hypothesis asserts an innate need for human beings to affiliate with life and lifelike processes (Wilson, 1984; see also Kellert, 1993). On this basis, physical beauty of nature is said to be one of the "most powerful appeals" to people (Kellert, 1993, p. 49).

2.1.5. The psycho-behavioural thesis of non-anthropocentrism

With the question of intrinsic value in nature, environmental ethics confronts the same issues that are central to axiology (see Chapter 1). For environmental ethics the concept of non-anthropocentrism further causes an epistemic problem. As noted above, if the truth about the existence or nonexistence of a value lies outside the human domain, then arguments for or against the existence of intrinsic value in nature are a matter of beliefs. One either believes in the existence of intrinsic value in nature or not. What implications different beliefs about the essence of nature's value have on individual human behaviour is the subject of the next sections. A nice concluding thought in transition from environmental ethics to environmental values and human behaviour, is the psycho-behavioural thesis of non-anthropocentrism.

Brennan and Lo (2009) recognise two theses of non-anthropocentrism in environmental ethics: (1) the *evaluative thesis of non-anthropocentrism*, and (2) the *psycho-behavioural thesis of*

non-anthropocentrism. The first thesis claims that natural non-human things can have intrinsic value. The second thesis, essentially a continuation of the first, states that people who believe in the first thesis are more likely to behave environmentally responsible than people who do not believe in it. Generally, the psycho-behavioural thesis of non-anthropocentrism cannot be verified or falsified by purely a priori philosophical reasoning but requires empirical investigations (Brennan & Lo, 2009; Keller, 2010). Therefore, at this point, this thesis changes perspective and turns to empirical sciences such as psychology and sociology.

2.2. The environment and human behaviour

The environmental movement (in the following referred to as environmentalism) and considerations of an environmental crisis have concerned sociologists and social psychologists. Alerted by overt social change, which seemed to be related to an arising environmental consciousness in Western societies, and in realising the causal nexuses between worldviews and attitudes towards nature, researchers aimed to explain such mental mechanisms and their impact on people's behaviour (e.g., Dunlap et al., 2000; Stern, 2000b). However, in their quest to addressing the concept of value, social psychologists did not focus on the non-anthropocentric intrinsic value of nature as such, but on the effects of human care for nature on individual life styles and social systems.

2.2.1. Social and psychological implications of environmentalism

The phenomenon of environmentalism in Western societies has been interpreted in two different ways with regard to Leopold's *Land Ethic*. One interpretation is offered by Heberlein (1972, 1977) who considers the emergence of environmental norms as a large-scale change attitudes in the general public due to the arising perception of an environmental crisis. As such, the change in attitudes is explained on ethical grounds, which affected both individuals and governments. Drawing on Schwartz's Norm Activation theory, Heberlein argues that environmental movements, supported by scientific knowledge and technological innovations, activated environmental norms. This activation came about through a rising feeling of responsibility for perceived negative effects on the natural environment as a consequence of human pollution. As well as personal and social norms, environmental norms are a new generation of moral norms, in which Heberlein sees a realisation of Leopold's *Land Ethic* (Heberlein, 1972).

The other interpretation of environmentalism is more sceptical about the true fulfilment of the *Land Ethic*. Noting an emerging criticism against environmentalism for giving overriding importance to nature and other species while undermining needs and rights of their own species, Dunlap and Van Liere (1977a, 1977b) question the general acceptance of environmental ethics by the public. This kind of criticism indicates that not all people are willing to pay the price for a persistent implementation of environmental ethics in the sense of Leopold's *Land Ethic* idea. Leopold had introduced the concept of an ethical sequence that includes three evolutionary stages. The first stage deals with the ethical relation between individuals. The second stage deals with the ethical relation between the individual and society, which involves the Golden Rule (*do unto others as you would have them do unto you*). The third and final stage is the land ethic, which deals with the ethical relation between human beings and the land (Leopold, 1987). Based on this logic, Dunlap and Van Liere argue that Western societies have not reached the final ethical stage yet, for which environmental norms correspond to the Golden Rule, and as such society constrains, rather than fully embraces the *Land Ethic* (Dunlap & Van Liere, 1977a).

The debate between the two different interpretations of environmentalism triggered serious empirical investigations on the relationship between people's concerns about environmental quality[14] and pro-environmental behaviour[15] (Stern & Dietz, 1994). In the following two selected approaches are introduced, which are among the most popular ones also related to each other: the New Ecological Paradigm and the Value-Belief-Norm theory.

2.2.2. Dunlap & Van Liere's New Ecological Paradigm

Dunlap and Van Liere (1978) developed the 'New Ecological Paradigm (NEP) Scale' to measure people's ecological worldviews. The original NEP contained twelve Likert-scale items addressing people's beliefs among three major themes: (a) the ability of humanity to upset nature's balance, (b) the existence of limits for human development, and (c) humanity's right to rule over nature (Dunlap et al., 2000; Dunlap, 2008). Against the preceding discussion in this chapter, the three themes are based on ethical argumentations of an environmental crisis and anthropocentrism. In a later, revised version, Dunlap et al. (2000) added two more themes to the NEP scale including beliefs about (d) modern industrial societies being exempt from ecological constraints, and (e) the likelihood of an ecological crisis. These amendments reflected emerging issues concerning the general public and public policy. Industrial societies came under fire in the 1980s and 1990s for producing environmental risks while having developed systems that were highly dependent on environmental resources, particularly fossil fuels, and thus were complicating solutions for global environmental issues (Beck, 1988; Stern et al., 1992). Further, there was a growing awareness of global environmental problems (e.g., ozone depletion, deforestation, loss of biodiversity, climate change), which appeared to be far more complex and synergistic (Dunlap et al., 2000; Dunlap, 2008).

The NEP has become the most widely used measure for (public) environmental concern, despite existing criticisms[16] and alternative measures[17] (Dunlap, 2008; Hawcroft & Milfont, 2010; Hedlund-de Witt, 2012; Stern, Dietz et al., 1995). Environmental concern, in the NEP approach, derives from people's core beliefs about humanity's place in nature. Such core beliefs are a reference to Rockeach's definition of value as enduring beliefs (Dunlap, 2008). Therefore, some scholars consider values as the basis for environmental concern (Merchant, 2005; Stern & Dietz, 1994; Stern et al., 1993). A hasty conclusion from this is that environmental issues could be solved by changing people's values and attitudes – an argument often propounded by natural scientists. However, the causal relations between values, attitudes and pro-environmental behaviour are not as straightforward as they may seem (Stern, 2000a).

2.2.3. Stern et al.'s Value-Belief-Norm theory

The Value-Belief-Norm (VBN) theory, developed by Stern et al. (1999), represents an attempt to integrate existing theoretical accounts of pro-environmental behaviour (Stern, 2000a). The VBN proposes that social movements, such as environmentalism, are psychologically based on a causal chain of values, beliefs, and personal norms (Stern et al., 1999). Based on the VBN,

[14] In the literature generally referred to as 'environmental concerns.'
[15] Pro-environmental behaviour is here understood as behaviour in support of the preservation of environmental quality.
[16] The NEP Scale has been criticized for a number of reasons including its items being ambiguous (Kopnina, 2011) or too simplistic (Lalonde & Jackson, 2002), its environmental attitude-behaviour relations being too weak (Scott, D. & Willits, 1994), its concept being too Western-oriented and difficult to apply to other cultures (Chatterjee, 2008; Khan et al., 2012), or its lack of unidimensionality (Albrecht et al., 1982).
[17] For example, the Ecology Scale and the Environmental Concern Scale.

Stern et al. provide a schematic model of such causal relations, linking five variables that influence environmental behaviour, as shown in Figure 2.1.

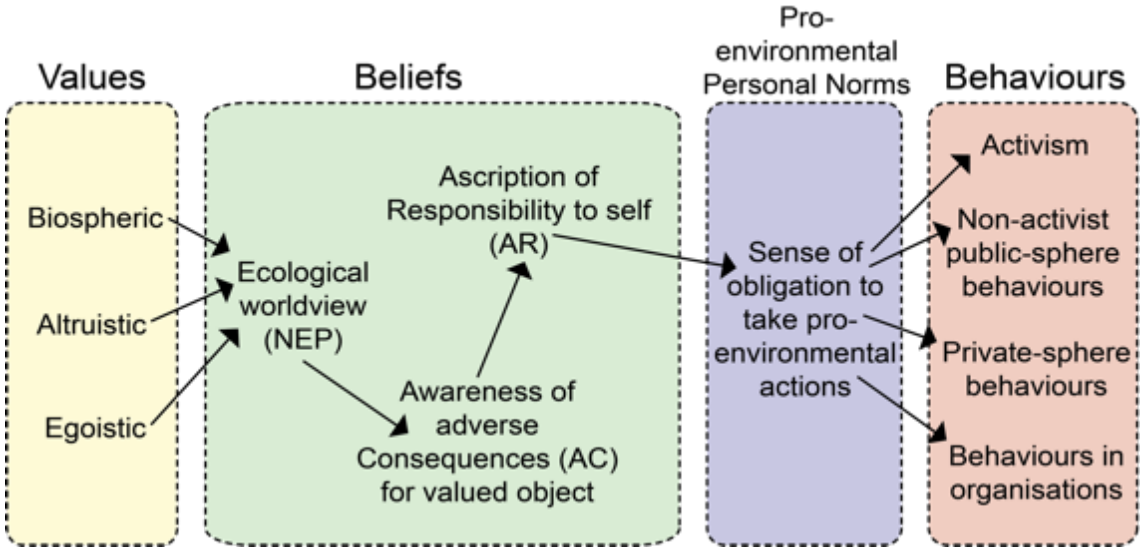

Figure 2.1: Schematic mode of variables in the VBN theory as applied to environmentalism (Stern, 2000, p. 412)

Values form the basis in the model. Three value bases are suggested for environmental concern: (a) egoistic, (b) altruistic, and (c) biospheric value orientations (Stern & Dietz, 1994; Stern et al., 1993). Egoism seeks to benefit the self. Caring about the environment because it affects oneself and the loved ones refers to egoistic environmental concern. Alternatively, caring about the environment for the benefit of the local community, society or humanity as a whole is based on values that are characteristic of altruism. Environmental concern in biospheric terms means caring about the environment for other than human species or ecosystems themselves (Dietz et al., 2005).

In the scope of the VBN, these three value bases are not considered as individual segments in an evolutionary process (with reference to Leopold's ethical sequence), but as three different value orientations along which individuals position themselves (Stern & Dietz, 1994). The influence of Schwartz's basic human values theory on the VBN is not evident in model version presented in Figure 2.1, but Schwartz's influence is apparent in other versions. Stern et al. attempted to match their three values bases of environmental concern with Schwartz's basic human values (Stern et al., 1998; Stern, Kalof et al., 1995). Stern et al. claim an analogy between their definitions of 'egoistic' and 'altruism' value orientations, and Schwartz's 'self-transcendent' and 'self-enhancement' value clusters (Stern et al., 1998; see also Dietz et al., 2005, 1999). Stern et al. (1999) also consider Schwartz's other two value clusters 'openness to change' and 'conservation' (with focus on traditional values). Based on empirical investigations, however, neither openness to change values, nor traditional values could prove consistent significance in supporting pro-environmental behaviour (Dietz et al., 2005; Stern, 2000b).

Beliefs take on a mediating role between values and norms in the VBN model. Here, Stern et al. integrate both Dunlap & Van Liere's NEP concept of ecological worldviews and Schwartz's Norm Activation theory (Stern & Dietz, 1994; Stern et al., 1993, 1999). Individual value orientations shape people's worldviews and general beliefs about nature, human beings and their relations. These general beliefs also influence beliefs about existing threats to a valued environment in actual situations (Awareness of adverse Consequences (AC)). Based on people's beliefs about AC of a given situation, whether or not they feel an urge to take action themselves (Ascription of Responsibility to self (AR)) will depend on their belief in their own

responsibility and ability to alleviate perceived environmental (Stern et al., 1999).

The belief in one's responsibility for action activates personal norms as a sense of a moral obligation to take action. Stern et al. (1999) argue that actions in support of environmentalism may vary in form and intensity depending on the willingness to take risks. Beside political activism, Stern et al. suggest three further non-activist types of environmentally significant behaviour. People can be politically active by reading environmental literature, supporting pro-environmental policies (e.g., accepting eco-tax), writing letters to political officials, or joining and donating to environmental organizations (ibid.). This form of 'non-activist public-sphere behaviour' is less risky, it is argued, because actions are less public and confrontational than those of activists (Stern, 2000b). Non-activist environmental behaviour can also occur in the private sphere. Consumer behaviours derive from decisions of individuals. Buying a fuel-efficient car, recycling household waste, using public transport, buying local organic products, etc. are choices individuals make among alternative options. However, environmental behaviour of individuals in the private sphere has only a relatively small impact on the environment.

The causal chain, represented in Stern et al.'s theoretical model, moves from relatively stable values and firm beliefs to more variable and case-related beliefs (Stern, 2000b; Stern et al., 1999). The arrows in Figure 2.1 indicate direct effects from one variable to the next in the chain. However, the linearity of the model implies that, indirectly, values also affect personal norm and behaviour through beliefs (Stern et al., 1999, p. 86; see also Stern, 2000, p. 413). Given that values are not directly observable, as repeatedly mentioned in Chapter 1, the fact that values are inherent in beliefs, which influence norms and behaviour, it is important for the present investigation and is further considered in the empirical part of this thesis.

The VBN theory focuses on environmental behaviour on the individual level. Some scholars criticised the theory for ignoring the importance of cultural influences (Oreg & Katz-Gerro, 2006). Compared to the cultural values theories discussed in Chapter 1, it is striking that not just social or cultural variables are missing in the VBN theory, but also external factors and reverse effects. It should be noted that Stern et al. (1995) include the socialisation of value orientations and beliefs in a predecessor model of pro-environmental action (see also Dietz et al., 1998). This model was further extended by Cameron (2002) who added social norms as a variable as well as feedback effects (see also Milfont et al., 2010). Against the criticism, the focus on the individual level is justified by the strength of psychology in understanding human behaviour. Stern perceives his work as a contribution to a bigger project, the scientific understanding of human-environmental interaction, which requires an interdisciplinary effort (Stern, 2000a).

2.2.4. Environmental issues and behavioural change

The assumption that environmental issues could be solved if people would change their values and attitudes accordingly, is a misleading. Human behaviour is far too complex, and too highly variable to attribute stable behavioural dispositions. There are numerous factors, both personal and contextual, affecting not just environmental behaviour but behaviour in general. In terms of a desired change of a specific behaviour on a large scale, contextual factors are considered more effective than deeper values. Therefore, comprehensive policy interventions are crucial (Stern, 2000a).

Enforcements of behaviour change as well as changes in values, attitudes and behaviour can develop gradually through learning processes. Such processes are not considered in the VBN theory (Henry & Dietz, 2012). Yet, in light of the current global environmental discourse, an understanding of learning processes and changing behaviour in the context of environmental

issues seem more relevant than ever. With reference to large-scale projects such as the Millennium Ecosystem Assessment (2005) or assessment reports of the Intergovernmental Panel on Climate Change (IPPC) (2007; 2013; 2001), researchers continue to stress the adverse effects of modern human lifestyles on the Earth System (e.g., changing climate, pollution, collapse of fisheries), which, in turn, impacts on human wellbeing (Millennium Ecosystem Assessment, 2005; O'Brien et al., 2010; Swim et al., 2011). Therefore, the ecological crisis is still present.

Hawcroft & Milfont (2010) emphasise how humanity remains living in an imbalance with the earth's natural limits, resulting in the "even more serious environmental issues" (p. 143) people are facing today. The heyday of the environmental movement is long gone, and its effects on regional, national, and global politics appear to be wearing out (Dunlap, 2008). Dunlap now sees himself as being naïve for having thought the movements of the 1960s and 1970s would continue to play an important role in global policy (Dunlap, 2008; Mertig & Dunlap, 2001). Despite the apparent persistence of the environmental crisis and an expansion of environmental issues, one would be mistaken to think that nothing has changed. Contextual factors, as Stern calls them, change constantly with emerging knowledge, technologies, laws or external factors such as natural disaster (Stern, 2000a). Therefore, worldviews, perceived consequences and responsibilities associated with a certain environmental issue change as well.

2.3. The environment and policy

As demonstrated in Chapter 1, value studies can be conducted on both the individual and the cultural (or societal) level. The same is true for related studies including environmental concerns and pro-environmental behaviour. When it comes to environmental issues of global scale such as climate change, efforts of individuals will not be enough. Ostrom (2010) refers to climate change as a "global collective-action problem" (p. 550). The VBN theory demonstrates the causal interconnections of a multiplicity of variables underlying behaviour of any individual. Collective action, however, requires consistent behavioural patterns among all individuals of the entire social group. Speaking of 'global collective action' expands this requirement to all human beings on the planet. Although this appears to be an impossible task, the responsibility to find solutions is usually sought in politics (Giddens, 2008; Moser & Boykoff, 2013; Stern, 2007). Policies impart clues for social norms, determine acceptable and non-acceptable behaviour, and give guidelines for decisions (Jost et al., 2008; Perrucci & Perrucci, 2014). There is reason to believe that the system and functioning of social institutions affect individual behaviour. Hofstede, Inglehart and Schwartz (Chapter 1) are convinced that certain common behavioural patterns are identifiable within a social group. This section now addresses such underlying mechanisms from an environmental policy perspective.

2.3.1. Political implication of environmentalism

The political influence of environmentalism became obvious on the national level with the formation of 'green' political parties since the late 1970s. On the international level, concepts resulting from ethical reconsiderations of the human relationship with nature are manifested in key international declarations such as the Rio Declaration on Environment and Development of the United Nations (1992– hereinafter referred to as the Rio Declaration) or the Earth Charter International (2000) (Sandler, 2012). The United Nations (UN), in particular, supported the creation of a concept that has become central in global environmental policy: sustainable development (Callicott & Mumford, 1997; Leiserowitz et al., 2006; United Nations, 2010).

The theoretical framework of the concept of sustainable development was developed between 1972 and 1992. Sustainability on the global level was for the first time addressed at the UN Conference on Human Environment held in Stockholm in 1972. The Stockholm conference can be considered an important milestone in global environmental policy, which, inter alia, led to the establishment of the UN Environmental Programme (UNEP). In 1980 IUCN, in collaboration with the World Wildlife Fund (WWF) and UNEP, published the Wold Conservation Strategy, which was developed as a means to identify conservation and policy priorities. A critical step in conceptualising sustainable development was the establishment of the World Commission on Environment and Development (WCED) by the UN in 1983 (United Nations, 2010). The WCEP released their report, "Our Common Future" (also known as the Brundtland Report), in 1987, which popularised the concept of sustainable development (French, 1999; United Nations, 2010). The report provided, what is considered the "classic" definition of sustainable development (United Nations, 2010) as :

> "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (1987, Chapter 2, 1).

Since the report, the term 'sustainable development' has been defined in various ways and its actual meaning is still subject to an on-going debate (United Nations, 2010). Sustainability can mean different things to different people (Callicott & Mumford, 1997). The view on sustainability in "Our Common Future" has been criticised for its anthropocentric stance. As an alternative, Callicott and Mumford (1997) introduce the concept of ecological sustainability, which also considers human needs that have to be met but emphasises "the health of ecosystems" (p. 32) that should not be compromised.

However, "Our Common Future" influenced heavily the Rio Declaration, adopted at the 1992 UN Rio Summit. The Rio Declaration contains twenty-seven principles of sustainable development, of which the first clearly states that

> "Human beings are at the centre of concern for sustainable development.

In the second sentence of this first principle, the Rio Declaration assigns human beings the right to live a "healthy and productive life in harmony with nature." The notion of 'life in harmony with nature' is symbolic for the essence of Leopold's *Land Ethic*, for which environmental ethics are inherent in the Declaration's first principle despite the anthropocentric statement.

The challenge of the concept of sustainable development is that it generally builds on three pillars including environmental protection, economic development and social equity, which are all valued independently. Therefore, sustainable development can only be achieved in harmony with all three elements (United Nations, 2010). As a result, on a policy level, dealing with environmental issues is more complex based on underlying environmental values that are accompanied by values underlying human development and welfare. A key issue is the use of natural resources. The Rio Declaration makes clear that states have the sovereign right to exploit it own resources (Principle 2). However, states should also "cooperate in a spirit of global partnership to conserve, protect, and restore the health and integrity of the Earth's ecosystems" (Principle 7). The latter involves, what is called the "commons management problem" (Henry & Dietz, 2012, Chapter 241).

2.3.2. The commons management problem

In economic terms, commons represent a good. Ostrom et al. (1994) classified four types of goods, characterised by two parameters: *exclusivity* and *competitiveness*. First, there are *private goods*, which are owned by individuals who can benefit from the good. Depending on an owner's property rights, private goods can be made exclusive to other people. Also, since private goods are a scarce resource, the consumption of private goods subtracts from their availability to others. The second type is *public goods*, which represent the counterpart to private goods. Public Goods are difficult to exclude others and lack rivalry (i.e. their consumption by one user does not subtract from their availability to others). The third type are *toll goods* (or club goods), which, can also not be reduced in their availability, but be made exclusive. Finally, *common-pool resources* (CPRs) refer to scarce resources and are, therefore, highly rivalrous. Opposed to private goods, however, CPRs are not to be excluded from others (Ostrom et al., 1994).

The commons management problem usually refers to CPRs and is perhaps best explained by Garrett Hardin's essay *The Tragedy of the Commons* (1968), the most widely cited work in this context (Gardner & Stern, 1996). Hardin comments on the problem of overpopulation, arguing that people tend to try solving the problem technologically while avoiding forfeiting any privileges. The fallacy of this approach lies in the fact that such a solution cannot be found because there is "no technical solution" to overpopulation as an environmental problem (Hardin, 1968, p. 1243). Hardin uses the analogy of a pasture open to all and herdsmen trying to keep as many cattle as possible in this pasture to illustrate how the idea of the freedom of the commons clashes with the utility doctrine ("the greatest good for the greatest number"). Consequently, free and unlimited access to resources where resources are limited necessarily has to lead to a tragedy (ibid.).

The tragedy of the commons refers to – and has become a metaphor for – the basic problem of the overexploitation of a resource (Ostrom et al., 1994; Ostrom, 1990). More precisely, the tragedy lies in the critical role of individual behaviour in environmental problems (Gardner & Stern, 1996). In every form of human social life, social dilemmas can occur – situations in which individuals make decisions that maximise short-term self-interest but leave all others affected worse off (Ostrom, 1998). Hardin argues that the solution of the problem "requires a fundamental extension in morality" (1968, p. 1243). Gardner and Stern (1996), on the other hand, suggest that the commons problem could be solved by appropriate management of the resources and collective actions. Throughout the history of human society people have developed and used a variety of methods to encourage pro-social behaviour – including religious and moral controls on behaviour, efforts to educate and change attitudes, governmental laws and incentives, small-group or community management arrangements (ibid.). In view of an Antarctic investigation, the management of the commons is elaborated and extended, regarding the definition of the commons as an entire area.[18]

The IUCN defines a commons as "a tract of land or water owned or used jointly by the members of a community" (1980, Chapter 18). There are also global commons, which the IUCN defines as those parts of the earth's surface that lie beyond national jurisdictions or are held in common (ibid.). The former refers to the open ocean and the living resources that can be found there, the latter refers to the atmosphere. "The only landmass that may be regarded as part of the global commons is Antarctica" (ibid.). International law identifies four types of

[18] Management and governance are related but bound to different tasks. Governance is defined in the next section. For the definition of management, the present thesis adopts the definition provided by the Independent Evaluation Group of the World Bank. "Management concerns the day-to-day operation of (…) the strategies, policies, processes, and procedures that have been established by the governing body" (Independent Evaluation Group, 2007, p. 71).

global commons; the high seas, the atmosphere, Antarctica, and outer space.[19] Today, global commons are often primarily perceived as being resource domains (Stern, 2011; UN System Task Team on the Post-2015 UN Development Agenda, 2013; Vogler, 2012). However, some scholars emphasise that the concept of the commons cannot be limited to physical resources (natural or artificial), but also includes non-physical resources such as global knowledge or cultural heritage (Herbert, 2007; Joyner, 1998; Vogler, 2012). From a legal point of view, four different legal statuses of commons areas are distinguished. A commons area can be a property that either belongs to no one (res nullius)[20] or is available for use by everyone (res communis). If the commons area is owned by humanity in general, then it refers to a common heritage of humankind. A commons area under a res publica regime can be used by anyone but is governed by a sovereign who is also responsible for the maintenance of the commons – comparable to a public trust (Joyner, 1998). Antarctica as a global commons and its legal status are further discussed in Chapter 3.

2.3.3. Principles of robust governance of environmental resources

Dietz et al. (2003) made an attempt to elaborate on how commons, even global commons, could be managed through governance at all levels – locally, nationally and globally. Governance can be defined as a broader concept of processes that involve patterns of ruling, coordination and organisation (Bevir, 2012). Dietz et al. outline a number of general principles for robust institutionalised governance of environmental resources, drawing on both results of empirical studies conducted by other researchers and own theoretical considerations. Three of the principles were identified as particularly critical for larger-scale environmental problems (e.g., trans-boundary pollution, tropical deforestation, climate change): (a) analytic deliberation, (b) nesting and (c) institutional variety. Analytic deliberation demands an informed analysis of the state of the environmental and human-environment systems. To this end, decision-makers should seek out a structured dialogue with scientists, resource users, and interested public. The analytic deliberation principle is of utmost importance, because it not only provides enhanced information but also creates trust among stakeholders. The principle of nesting refers to multi-layered institutional arrangements where governance reaches all levels of the social system to work most efficiently (Dietz et al., 2003). Finally, using a mixture of different instrument types (e.g., hierarchies, markets, and community self-governance), allows governance to employ "a variety of decision rules to change incentives, increase information, monitor use, and induce compliance" (Dietz et al., 2003, p. 1910). Figure 2.2 illustrates (indicated by the arrows) how general principles (in green) can help meeting governance requirements (in yellow).

[19] See information provided by UNEP's Division of Environmental Law and Conventions (DELC): http://www.unep.org/delc/GlobalCommons/tabid/54404/Default.aspx – accessed: 15/4/2014

[20] Note this legal status does not apply to the definition of a commons by IUCN.

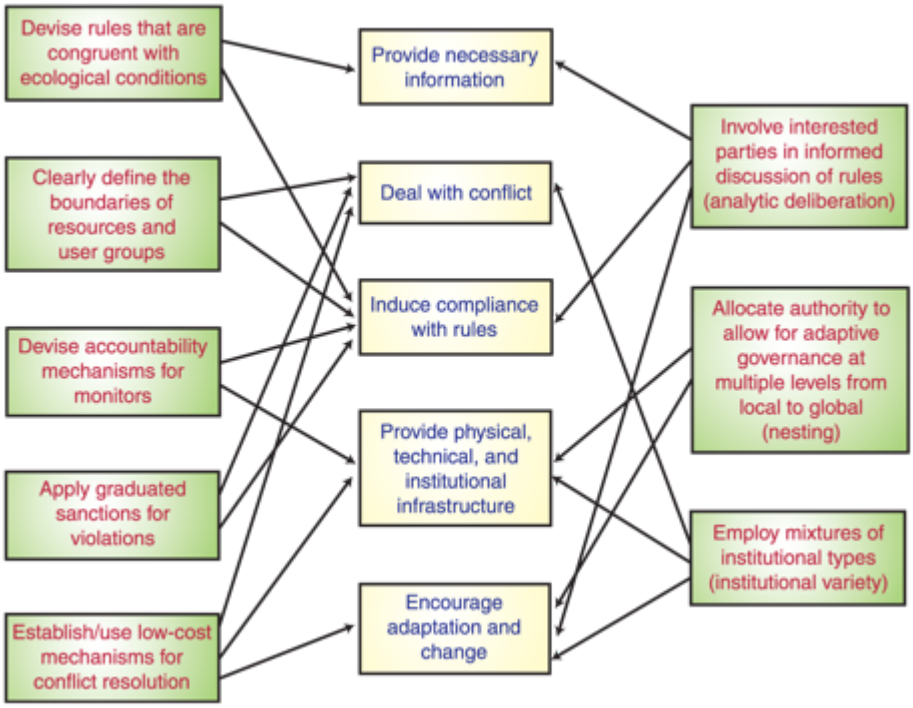

Figure 2.2: General principles for robust governance of environmental resource (green, left and right columns) and the governance requirements they help meet (yellow, center column) (Dietz et al., 2003, p. 1910)

Dietz et al. (2003) also worked out five requirements for the governance of environmental resources in complex systems in order to adapt to changes and handle challenges to the system: (1) providing information, (2) dealing with conflict, (3) inducing rule compliance, (4) providing infrastructure, and (5) being prepared for change. Good environmental governance needs to be well-informed about the current state of the resource system, including the effects of human-environment interactions, as well as existing uncertainties. Knowledge about individual and social values can be another beneficial factor for sound decision-making (Dietz et al., 2003). It is important that available information is good and trustworthy and meets decision-makers information needs at the time a decision is required. Information needs, however, may vary in scope and depth depending on the environmental event, and the presentation, timing and content is crucial. For the information to be most effective, it has to be fully understood by the decision-makers.

Given the unequal distribution of power and differences in interest and value emphasis among stakeholders, however, conflict is almost unavoidable in environmental choice. "[C]onflict resolution may be as important a motivation for designing resource institutions as is concern with the resources themselves" (Dietz et al., 2003, p. 1909). Effective governance also requires that people follow and act according to the rules designed for resource usage. In this context, so-called tradable environmental allowances (TEAs), which define pollution credits and limits, have become important – particularly in global climate change negotiations (Bernstein et al., 2010; Hoffmann, 2011; Lederer, 2012). Physical and technological infrastructure is also crucial to various aspects of resource usage, including the extent of the exploitation, environmental pollution produced, and the monitoring of both the quality of the resource and the behaviours of its human users. Infrastructure also encompasses communication and transportation technologies, which are particularly important to connect local commons to regional and global markets. Also, institutional infrastructure (including science, social capita, rules) requires the coordination between all levels of governance (Dietz et al., 2003, p. 1909). Finally, global knowledge constantly expands, social and biophysical systems change over time, and as such,

governing institutions have to be flexible enough to adapt to changing circumstances (Dietz et al., 2003).

The management of the commons presents comprehensive socioeconomic and organisational challenges. The critical role of individual behaviour has been stressed as well as potential value differences among members of complex social systems, causing conflicts and complicate the consensus needed for a successful governing of the commons. The management of the commons does not merely deal with technical problems but is also confronted with ethical questions. Social systems (and ecological systems) are not static but change over time, which adds complications for management. For these reasons, it is clear that there are complex and dynamic processes underlying the management of the commons, which include judgements and decisions about how the commons should be managed. On any level other than the individual level, where collective action is crucial for the functioning of the system, these decisions are political decisions.

Politics aims to manage conflicts or mediate differences over policy preferences or interest (Haward, 2013). The process, in which different preferences and interests are negotiated, are of special interest for the present investigation as it presents a promising ground for a value study. Therefore, the following sections delve deeper into the theory of policy processes.

2.3.4. Policy-making processes

Sabatier claims that it is within the policy-making process where "problems get conceptualized and brought to government for solution" (2007, p. 3). Such a process involves multiple interacting variables – including values and beliefs of participating actors – that make policy processes highly complex. In order to examine these processes, Ostrom (2007, 2011) suggests three levels of theoretical analysis building upon each other: frameworks, theories and models. At the first or most general level of analysis are frameworks. Frameworks focus on the identification of major structural elements of the object of investigation and the relations among those elements. Frameworks essentially "provide a metatheoretical language" (Ostrom, 2011, p. 8) for further in-depth analysis. As such, frameworks form the basis for theories and a common ground to compare different theories with each other. The purpose of theories, on the other hand, is to address specific questions and identify those elements of the framework that are particularly relevant to this question and making general statements on the characteristics and qualities of these elements. Theories have the capacity to diagnose a particular phenomenon, explain its underlying processes and predict outcomes. Theories form the basis for models, the narrowest type of analysis with a focus on a limited set of variables and parameters allowing models to predict results that arise by combining these variables (Ostrom, 2007, 2011). The following sections introduce two of the most common frameworks used for studies of policy process (Sabatier, 2007; Weible et al., 2012).

2.3.4.1.The Institutional Analysis and Development Framework

The Institutional Analysis and Development (IAD) framework is often associated with Elinor Ostrom, but was developed in cooperation with numerous colleagues (Ostrom, 2005, 2007, 2009). The initial version, published in 1982 (Kiser & Ostrom, 1982) aimed to provide a general framework for the analysis of how incentives and the corresponding behaviour of individuals are influenced by institutions (Ostrom, 2007). Ostrom defines institutions as "shared concepts used by humans in repetitive situations organized by rules, norms, and strategies" (2007, p. 23). In this sense, institutions do not refer to organisational entities. 'Rules' of the institution are considered shared and commonly understood among participants, and can be enforced by authorised agents. 'Norms' are also shared, but here the participants

themselves enforce them. 'Strategies,' on the other hand, can differ between individual participants. They refer to plans for interaction considering given structures, other participants, and specific conditions in a situation (Ostrom, 2007).

Meanwhile, the IAD framework has been further developed and applied to several empirical studies across disciplines (Ostrom, 2005, 2007). In its current version, the IAD framework is designed as a "multi-tier conceptual map" (Ostrom, 2011, p. 9), which means it focuses on a particular analytical level, but allows the researcher to go to levels below and above that focal level. The focal level in the IAD framework is the so-called 'action situation' (Ostrom, 2005). The action situation is broadly defined as "the social spaces where individuals interact" (Ostrom, 2011, p. 11). Affected by external variables (i.e., biophysical conditions, attributes of community and rules-in-use), the action situation generates outcomes that, in turn, may affect both the action situation and external variables subsequently. Patterns of interactions and outcomes are evaluated against certain criteria used to assess the systems' performance. Depending on the evaluation of the performance (i.e., whether or not the interactions are fair and yielding outcomes productive), actors involved may either maintain or change their strategies (Ostrom, 2005). Figure 2.3 presents the elements the IAD framework identifies as important for the analysis of institutions. With the action situation at focus, Figure 2.4 zooms in and demonstrates the interplay between variables within the action situation.

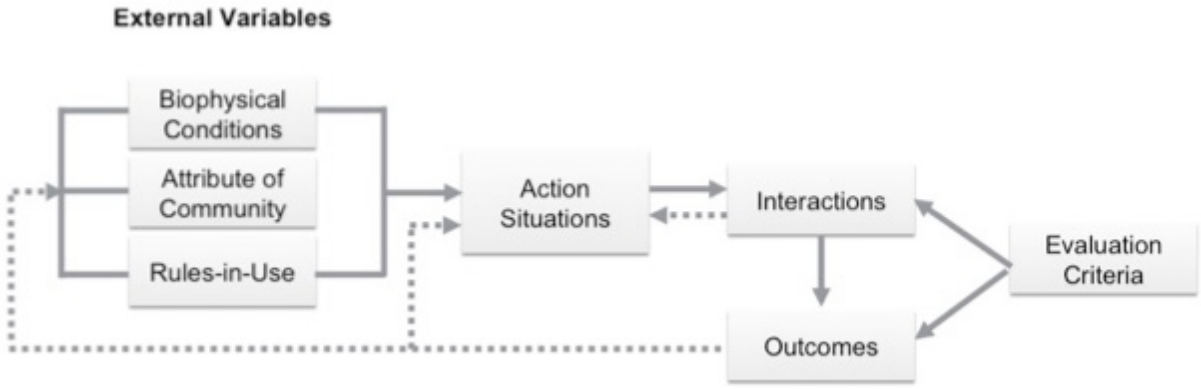

Figure 2.3: A framework for institutional analysis (Ostrom, 2011, p. 10)

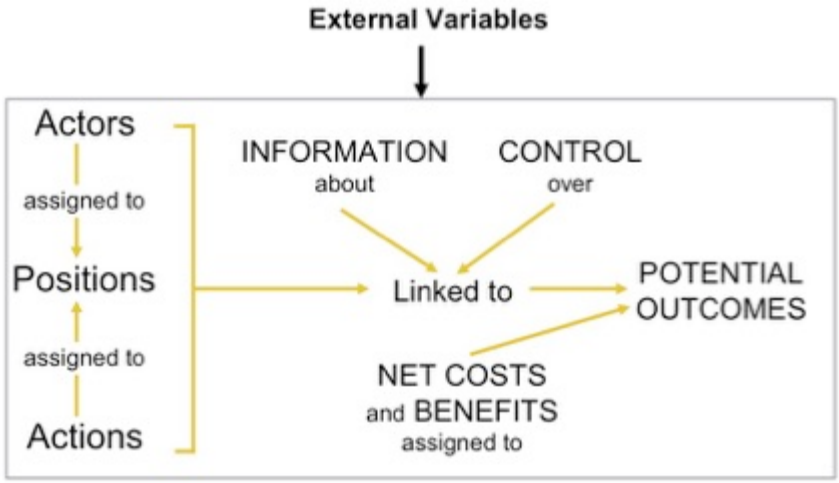

Figure 2.4: The internal structure of an action situation (Ostrom, 2011, p. 10)

Interaction in the action situation can involve the exchange of goods and services, attempts to solve problems, domination of individuals, arguments and conflicts. Actors involved in this situation include individuals appointed to certain positions. Individual actors can vary in terms of their resources, worldviews, behaviour in dealing with knowledge and information, practical reasoning and preferences for a certain course of action. The specification of the situation and actors' motivational and cognitive structure is crucial for this stage of the analysis. Aside from the set of actors and their specific position, there are a number of other variables affecting the structure of an action situation. Positions come with specific allowable actions, which are linked to the impact an actor can have on the outcome. The outcomes, in turn, will further depend on the active participation of individual actors, their level of control over choice and the information available to them about the action situation. Finally, in terms of actors' incentives and deterrents, the costs and benefits assigned to actions and potential outcomes are relevant (Ostrom, 2011).

Based on the analysis of the actors' characteristics and the analytical structure of the situation, inferences or even predictions about likely behavioural patterns and outcomes can be made. Ostrom further notes that the evaluation of the outcomes depends on the criteria used for the analysis. Examples for analytical criteria are economic efficiency, equity through fiscal equivalence, redistributional equity, accountability, conformance to values of local actors, and sustainability (Ostrom, 2011).

2.3.4.2.The Advocacy Coalition Framework

While the IAD framework embraces the concept of rational choice, the advocacy coalition framework (ACF) introduces a constructivist approach, which focuses on belief systems and considers long-term processes of policy change induced through social learning (Sabatier, 1998, 2007; Weible et al., 2012). A crucial element in these processes is the formation of coalitions. The ACF believes that "stakeholder beliefs and behavior are embedded within informal networks" while the policy-making process itself is structured, inter alia, "by the networks among important policy participants" (Sabatier & Weible, 2007, p. 196). Similar to the IAD framework, actors play an important role in the analysis.

The ACF has undergone several revisions since its first publication by in 1988 (Sabatier & Jenkins-Smith, 1988) and been applied to various public policy issues across different geographical areas. Generally, the ACF is based on four assumptions: (1) the main unit of analysis is the policy subsystem, (2) the understanding of subsystem affairs requires a long-term time perspective, (3) there is a possibility of aggregating sets of actors involved in policy systems into coalitions, and (4) policy designs can be understood as translations of coalition beliefs (Sabatier & Weible, 2007; Weible et al., 2009). Key concepts of the ACF and their relations within the overall policy process are illustrated in Figure 2.5.

The ACF assigns particular importance to the role of science and technology information, because of their potential to influence political actors' beliefs (Sabatier & Weible, 2007; Weible & Sabatier, 2009). Beliefs in general are central to the ACF and regarded as the "causal driver for political behavior" (Weible et al., 2009, p. 122). Political actors who wish to influence policy must specialise, and such specialisation takes place in political subsystems. A subsystem is defined by two parameters: its substance (e.g., water quality policy) and territory (e.g. California) (Sabatier & Weible, 2007). According to the ACF logic, political actors, to be successful, must seek allies in order to be more influential in the policy-making process (Sabatier & Weible, 2007). Political actors may include legislators from multiple levels of government, agency officials, interest group leaders, as well as specialised journalist and researchers (Sabatier & Weible, 2007; Sabatier, 1998). Advocacy coalitions are formed where participating actors share certain normative values and causal beliefs, based on which they

engage in continuous coordinated activities (Sabatier & Weible, 2007; Sabatier, 1998). The ACF assumes a three-tier belief system consisting of deep core beliefs, policy core beliefs and secondary beliefs, which underlie each coalition (Sabatier & Weible, 2007; Weible et al., 2009).

The three types of beliefs differ from each other in both scope and function. At the broadest level are deep core beliefs, which refer to rather abstract but relatively stable, basic normative and ontological beliefs. Deep core beliefs exist across subsystems (Sabatier & Weible, 2007). Policy core beliefs, at the next level, are narrower in scope as they are more subsystem specific but span the entire policy domain. Sabatier and Weible describe policy core beliefs also as "applications of deep core beliefs" (2007, p. 194) and see them as basis for the formation of coalitions among participating actors in the policy subsystem. As such, policy core beliefs comprise normative and empirical beliefs (Weible & Sabatier, 2009). Normative policy core beliefs are considered "basic value and welfare priorities related to the policy system" (Sabatier & Weible, 2007, p. 197). Empirical policy core beliefs refer to "overall seriousness and causes of a problem in a policy subsystem" (ibid.). Although policy beliefs are also difficult to change, they are less stable than deep core beliefs (Sabatier & Weible, 2007). At the next level of the belief system are secondary beliefs, characterised as "more substantively and geographically narrow in scope, more empirically based, and only related to a subset of the policy subsystem" (Sabatier & Weible, 2007, p. 197). Generally, empirical beliefs are more likely exposed to changes than normative beliefs (Weible & Sabatier, 2009). However, scientific and technical information "may facilitate learning at the secondary level, but not the policy core" (Sabatier & Weible, 2007, p. 198). Indeed, based on a study on water quality policy, Weible and Sabatier (2009) found that environmental conflicts result from value differences rather than scientific or technical shortcomings. Therefore, major change within policy subsystems must be induced by external sources (Sabatier & Weible, 2007).

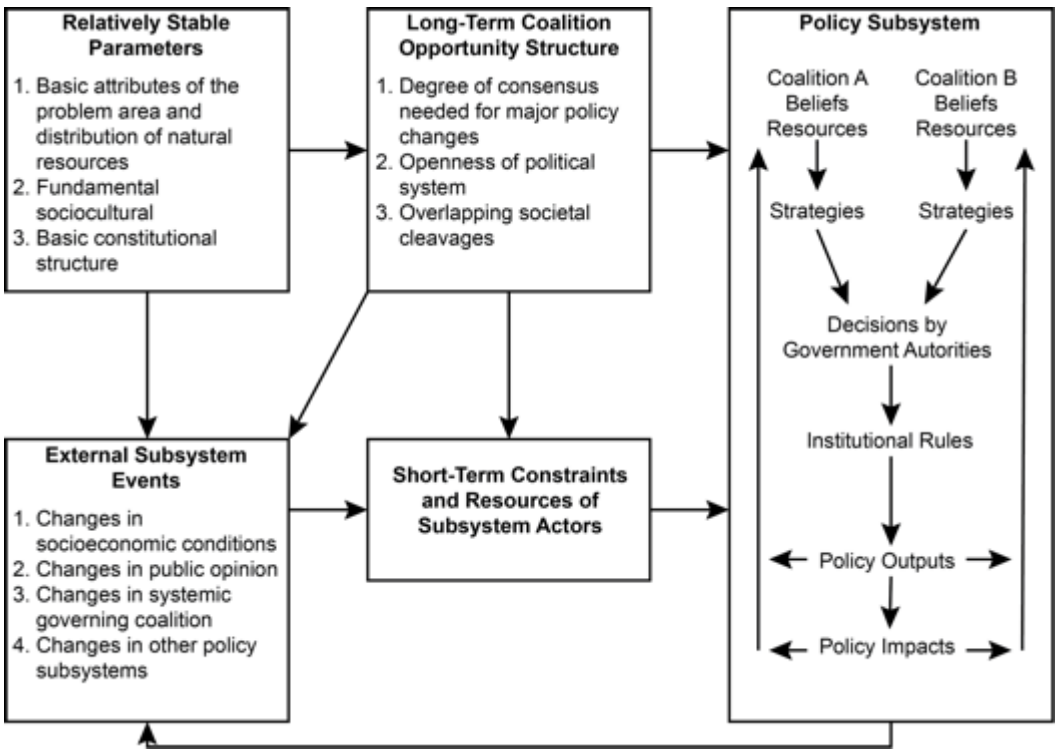

Figure 2.5: Flow diagram of the Advocacy Coalition Framework (Weible et al., 2011, p. 352)

The policy subsystem operates in a broader political environment (Figure 2.5). Within the broader political environment the ACF identifies relatively stable parameters and external events as two sets of variables able to affect the policy subsystem externally. Relatively stable parameters include the basic attributes of the problem area and distribution of natural resources, fundamental socio-cultural values and social structure, and basic constitutional structure. External events, on the other hand, refer to changes in socio-economic conditions, public opinion, systemic governing coalition or other policy subsystems (Sabatier & Weible, 2007; Weible et al., 2009). Both relative stable parameters and external events influence policy subsystems indirectly by directly affecting the resources and constraints of actors involved in the subsystem (Sabatier & Weible, 2007). Moreover, as shown in Figure 2.5, the ACF considers a further set of variables that mediates between stable system parameters and the policy subsystem, namely coalition opportunity structures including the variables consensus among political actors, openness of the political system and overlapping societal cleavages.

Some scholars have made attempts to combine the ACF with other theories and frameworks (Weible et al., 2009). Henry and Dietz (2012) recognise certain conceptual similarities between the ACF and the VBN theory and suggest using key aspects of both concepts for a still missing integrated theory on 'environmental cognition.'[21] While environmental cognition itself offers an interesting concept for an Antarctic investigation, the approach of combining related, individual elements of different theories is adopted for the methodological approach of the present investigation. Therefore, in the following summarising discussion of this chapter, there is also a discussion included on links between theories presented in this and the previous chapters.

2.4. Summary and discussion

The literature review presented here does not claim to be exhaustive. Given the interdisciplinary approach, there is no shortage of existing theories. The theories introduced in this chapter are among the most influential in the context of values, human behaviour and the environment. The main purpose was to show how value studies grow in complexity when put into context; and an environmental context was selected to lay the foundation for the Antarctic case study. Values are still at the core of human behaviour and the functioning of social institutions, but for any meaningful value-related case study, it is crucial to integrate both belief systems and social systems into the analysis.

The chapter began with the notion of an environmental crisis. The idea of an environmental crisis is based on the belief that humanity is harming itself by destroying nature. Approaches to overcome the crisis are based on the general positioning in the human relation to nature, which includes the degree of the appreciation of nature and whether or not nature is perceived as valuable in or for itself. Ideological differences between the "preservation of wilderness" and a conservation of nature, which includes the "wise use of natural resources" (Callicott, 1994, p. 37), have been touched on. A common way to express the value of nature today is to speak of ecosystem services (Costanza et al., 2014; Daily et al., 2009; Edwards & Abivardi, 1998). Behind the concept of ecosystem services is the idea of nature as a life-supporting system (Folke, 1991), on which humanity is fully dependent (Millennium Ecosystem Assessment, 2005). Ecosystem services are understood as the collective term for the benefits humanity gains from ecosystems (ibid.). On these grounds, the human relationship to nature may be still viewed as anthropocentric in the sense that nature is taken as a source for human well-being (Schröter et al., 2014). Yet, under the perception of being fully dependent on nature, humanity

[21] Henry and Dietz define the term environmental cognition as "the way individuals structure their thinking about environmental issues and associated political actions" (2012, p. 238).

cannot consider itself as the dominant part in its relationship to nature. On the contrary, nature can easily become a threat to humanity, who is vulnerable to nature's powerful forces.

The concept of environmental cognition, as introduced by Henry and Dietz (2012), is an interesting approach for the study of values in an environmental policy context. Based on the deliberations on values as a concept elaborated in the previous chapter, the interpretation of knowledge and the reasoning in making sense of an (environmental) issue and justifying political actions must involve values. Environmental cognition may also facilitate the prediction of future policy directions. Here again, changes are crucial for the identification of emerging trends. For example, approaches towards an evaluation of the value of nature have developed from a consideration of the intrinsic value of nature to a cost-benefit analysis of ecosystem services. The challenge of balancing human development with sound ecosystems remains. Changes in environmental cognition in relation to learning processes are also relevant for collective action. In the previous chapter, Schwartz's criticism of the idea of culture as shared meaning systems was discussed, which Schwartz considers misleading as far as individuals are concerned. With regard to Ostrom's conceptual understanding of intangible institutions, one may question how the shared concepts emerge. Learning is one possible explanation.

Henry and Dietz also raise an interesting point in terms of conceptual similarities between the VBN and the ACF beside the different foci. Both theoretical approaches outline a process that includes relatively stable parameters (such as values), beliefs and strategies (which involves an analysis of the current situation and deliberations on how to best achieve goals), and some sort of decision for action. One important difference, however, may be the inclusion of external factors in the ACF – a detail the VBN theory does not consider. Comparing the ACF with the IAD framework, there are again different foci that limit the comparison. While the ACF focuses on policy subsystems, the IAD framework concentrates on institutional action situations. But there are also links between the two frameworks, which can be attributed to similar basic conceptions.

Both frameworks emphasise the important role of actors and their interactions, while, at the same time, considering actors' constraints due to given systems, positions and resources. The ACF and IAD systems are dynamic in the sense that they include feedbacks from interactions and action situations. Influences of external factors are also taken into account in both the ACF and IAD frameworks. Moreover, the ACF and IAD frameworks further share similar conceptions with theories on cultural values as presented by Hofstede and Schwartz (see Chapter 1). An action situation is also included in the policy subsystem where institutional rules are explicitly addressed in the ACF, while the formation of coalitions, understood as a strategic grouping, can be regarded as an intermediate step between external factors and the action situation. The IAD framework indirectly considers value influences through the external variables 'attributes of community' and 'rules-in-use'. Ostrom (2007) specifies 'attributes of community' as an identifiable general structure or culture of a community, which determines what behaviour is acceptable and what is not within the community. Similarly, the 'rules-in-use' provide the social norms and unwritten rules, under which the community operates and communicates, and which have to be learned by new members (ibid.). As elaborated in the previous chapter, values give reason to decisions and actions. Cost-benefit analyses or rational choice in general do not exclude the value factor.

Overall, the interdisciplinary approach to the value theme in a broader framework proved to be exceedingly fertile. Value and value-related theories across disciplines overlap and sometimes reference each other directly. In agreement with Henry and Dietz, a merging of theories into one universal theory is difficult and not desirable, but considering the diversity of perspectives is actually an advantage. The overview of some of the existing theories presented in this and the previous chapter provide a complex and profound basis, on which an in-depth value

investigation can be developed. Construing ideas and causal relations manifested in these theories as individual modules, selected modules can be used to build the theoretical foundation appropriate for the specific case. The task of the following chapters is to design an adequate theoretical model for an Antarctic case study, starting with a framework analysis of the Antarctic system.

3. Antarctica: A Framework Analysis

This chapter focuses on the framework of the Antarctic system, with references to Ostrom's analysis levels, to identify those structural elements of the system with the potential to be included in empirical studies of values in Antarctica. The Antarctic system[22] refers here to the mechanisms in place to govern human interactions with Antarctica. In this chapter, various concepts and theoretical approaches related to environmental policy and policy-making, discussed in the previous chapter, are tested against the Antarctic system. Although the primary focus is on structures and practices of the Antarctic system, values that are integrated in the system are also discussed. Because Antarctica is a rather unusual case, this chapter begins with a brief introduction to the place itself.

3.1. A brief introduction to Antarctica

In Chapter 2, it was discussed that Antarctica is the only landmass on Earth that may be considered a global commons. Despite its size of approximately 14 million square kilometres (McGonigal & Woodworth, 2001; Turner et al., 2009), Antarctica occupies a smaller area than any of the other global commons identified under international law, i.e. the high seas, the atmosphere or outer space. Antarctica is sometimes called the "frozen" continent because it is dominated by thick ice (Joyner, 1998; Liggett et al., 2011; Walton, 2013a). The Antarctic Ice Sheet [23], "a vast contiguous mass of glacial ice", covers 99 per cent of the Antarctic continent and stores 70 per cent of the Earth's freshwater in its approximate 30 million cubic kilometres of ice (Turner et al., 2009, p. 4). With the South Pole at its heart, Antarctica is the most isolated continent, surrounded by the southernmost waters of the world's oceans, known as the Southern Ocean (Aronson et al., 2011). The Antarctic region, including its surrounding waters, is defined by a natural boundary, the Antarctic Polar Frontal Zone – "linked with the Antarctic Circumpolar Current, where the southern cold surface water sink below warmer southern temperate waters" (Chapin et al., 2005, p. 720). Furthermore, Antarctica is often described through a whole series of superlatives including being the coldest, driest and windiest continent on Earth (Turner et al., 2009).

Theses extreme conditions make no natural human habitat and, indeed, Antarctica is lacking any native human population (Chapin et al., 2005). Both polar regions, Antarctica and the Arctic, share the experience of 24 hours continuous daylight during their summer season and 24 hours continuous darkness during their winter season (Turner et al., 2009). Despite some similarities, the two polar regions differ widely (Chapin et al., 2005). During the austral winter, temperatures drop severely which leads to a significant increase in sea ice, covering an area of 20 million square kilometres – bigger than the Antarctic continent itself – and thus isolating Antarctica even more by making it almost inaccessible (Dingwall, 1998; Turner et al., 2009). The Arctic, on the other hand, is an ocean surrounded by continents (Europe, Asia and North America) (Cava et al., 2011). Land that reaches in the Arctic Circle (66° 33'N) is populated by both culturally distinct indigenous peoples and long-term settlers, albeit with very low density except for some urban centres (e.g., Murmansk with over 300,000 inhabitants) (Cava et al., 2011; Chapin et al., 2005).

[22] Note that the notion of Antarctic system does not refer to the Antarctic Treaty System, which will be discussed extensively in further course of this chapter.

[23] The Antarctic Ice Sheet is usually distinguished between West Antarctica (including the Antarctic Peninsula) and East Antarctica, which are separated by the Transantarctic Mountain Range. Hence, in the literature it is referred to the Western Antarctic Ice Sheet (WAIS) and the Eastern Antarctic Ice Sheet (EAIS) (Turner et al., 2013).

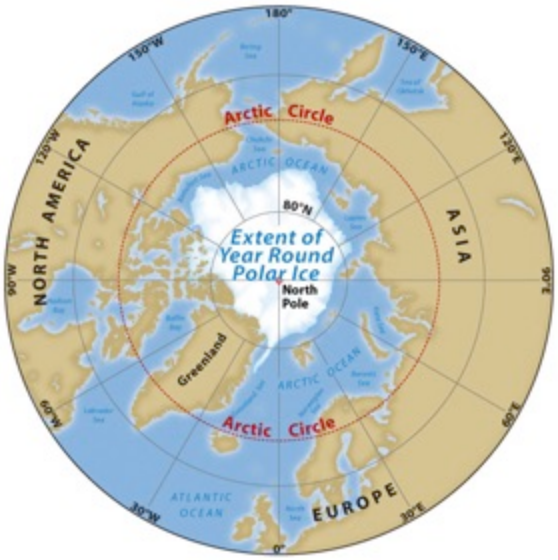

Figure 3.1: Map of the Arctic Circle – source: Smithsonian National Museum of Natural History, http://forces.si.edu/arctic/04_00_07.html (accessed: 03/06/2014)

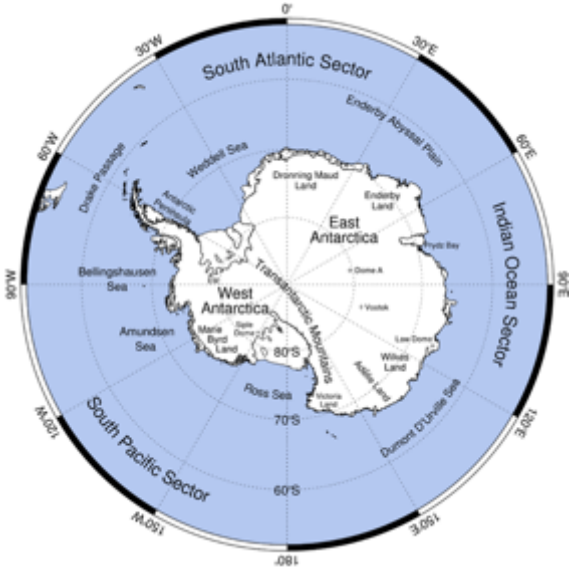

Figure 3.2: Map of Antarctica – source: Turner et al. (2009), p. 2

Antarctica's geographic isolation and colder temperatures have led to lower levels of terrestrial biodiversity in the Antarctic compared to the Arctic. Antarctica has, in fact, no native terrestrial vertebrates. The continent is mainly inhabited by marine birds (penguins, petrels, gulls, terns, skuas) and seals, which occur in large populations. In addition, a small number of native species of plants and insects can be found on the continent. The surrounding Southern Ocean, on the other hand, comprises one of the world's most productive marine ecosystems. Finish and hunting for marine mammals and birds in the Antarctic region began less than 200 years ago, a significantly shorter period compared to the fishing history in the Arctic (Chapin et al., 2005). Therefore, particular parts that are more remote, such as the Ross Sea, are emphasised by some environmentalists and scientists as the last pristine marine ecosystems on Earth (Ainley, 2010; Ballard et al., 2012; Chown, 2013).

The attitudes to management of these pristine ecosystems are highlighted by the political differences between the Arctic and Antarctic. The most crucial difference lies in the sovereignty. While governance in the Arctic "is an extension of the sovereign jurisdictions of five coastal states" (Cava et al., 2011, p. 296) – Canada, Russia, the United States (Alaska), Denmark (Greenland), Norway, Sweden, Finland and Iceland – Antarctica is governed by a system of multilateral agreements with the Antarctic Treaty at its core that proclaims "sovereignty neutrality" (Triggs, 2011, p. 39). Antarctica's sovereignty neutrality, however, has its ambiguities, which have been also subject to dispute, as some Antarctic scholars pointed out (Joyner, 1998; Klotz, 1990).

Antarctica's legal and political status has to be understood in its historical context. After centuries of speculations about a mysterious 'terra australis incognita' (unknown land of the south) finally discovered in the early nineteenth century, Antarctica has long been considered 'terra nullius' (i.e., land that belongs to no one, see Chapter 2) (Klotz, 1990; Roots, 2011; Shapley, 2011). In 1908, a British Royal Letters Patent declared British sovereignty over the Falkland Island Dependencies on the grounds of discoveries made by British explorers (Joyner, 1998; Walton, 2013b). For the same reason, the British government later defined its territorial claim over a number of island groups (South Georgia, South Orkney, South Shetlands and South Sandwich) and parts of the Antarctic mainland (Antarctic Peninsula) located south of

50°S latitude and between longitudes between 20°W and 80°W (Abbink, 2009; Joyner, 1998). According to Walton, the British government, after World War I, had the ambition to control the entire Antarctic continent "through a gradual process of annexation" (Walton, 2013b, p. 14). In 1923, Britain claimed the Ross Dependency and delegated responsibility over this territory to New Zealand (Brady, 2011; Joyner, 1998).

Meanwhile, other countries asserted their rights due to their explorations. France claimed Antarctic territory in 1924, followed by Australia (1933) and Norway (1938) (Abbink, 2009; Walton, 2013b). However, some states expressed concerns or even questioned the legality of Antarctic claims. For example, the United States government did not recognise any territorial claims on Antarctica based on the Hughes doctrine[24] of 1924, which required "actual settlement of the discovered country" (Abbink, 2009, p. 24) before being entitled to formally take possession of it. Some scholars have interpreted the doctrine as a strategic move by the United States to preserve their own rights in Antarctica (Hall, 1989; Howkins, 2013).

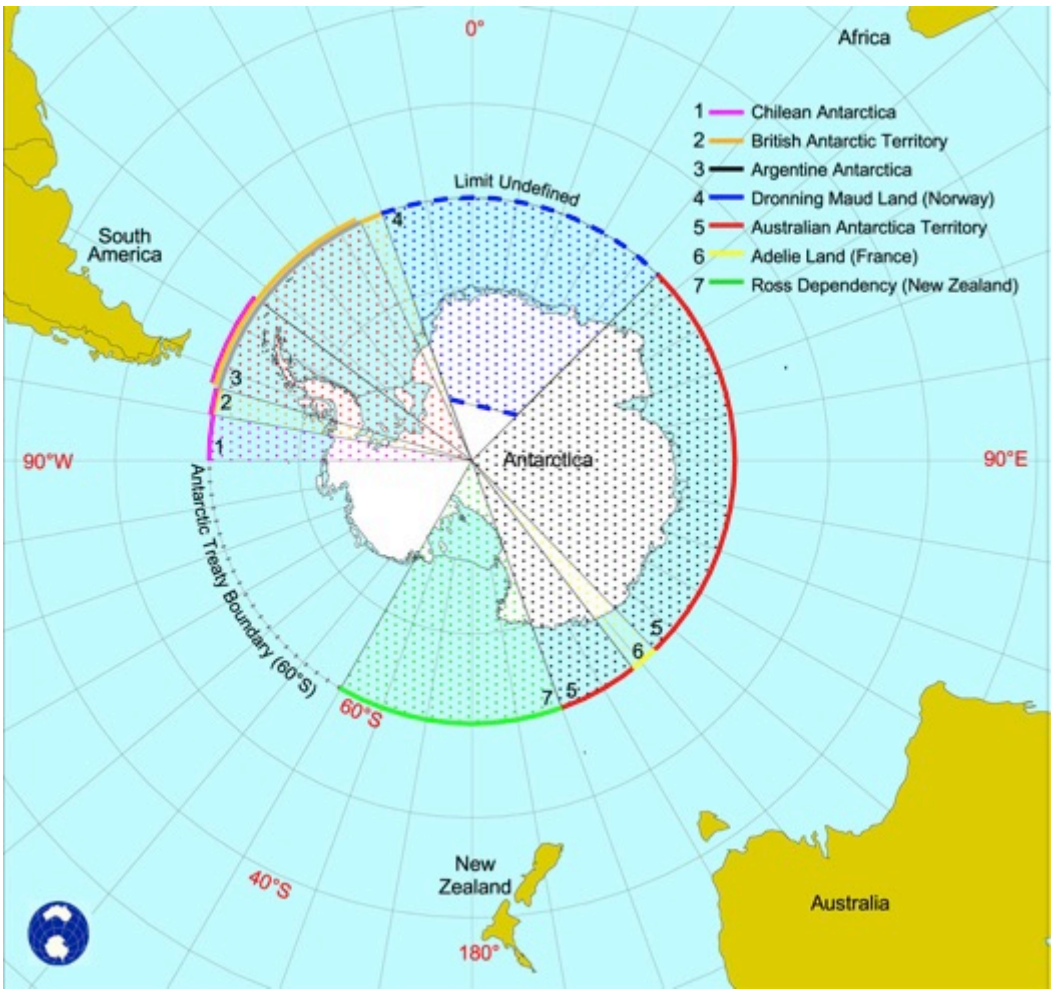

Figure 3.3: Antarctic Territorial Claims – source: Australian Antarctic Data Centre

Considerable political tensions emerged with the territorial claims of Argentina and Chile in the 1940s. Both Argentina and Chile based their claims on a combination of historic rights, the geographic continuity of their mainland, and effective occupation (Abbink, 2009; Walton, 2013b). Antarctic territories claimed by Argentina and Chile overlap and also compete with Britain's territorial claims (Figure 3.3). The British-Argentine relationship, in particular, became strained – and still is today (Dodds & Hemmings, 2014; Hewer, 2013; Klotz, 1990).

[24] Named after Charles Evans Hughes, Secretary of State at the time.

After World War II and with the beginning of the Cold War, the political tensions between the emerging superpowers, the United States and the Soviet Union, also brought military operations onto the Antarctic continent (Blumenfeld, 2010; Howkins, 2013).

The "largest and most wide-ranging Antarctic expedition ever", was Operation Highjump organised by the United States Navy in the austral summer 1946-47 and including "13 ships, 33 aircrafts and nearly 5000 personnel" (Walton, 2013b, p. 17). Officially, Operation Highjump was set up to test equipment in Antarctic conditions and to conduct extensive aerial photomapping (ibid.). However, some scholars have emphasised that Operation Highjump was essentially a demonstration of power by the United States and a reassertion of its right to the Antarctic continent (Howkins, 2013; Turchetti et al., 2008; Walton, 2013b). The Soviet Union, on its part, asserted its own right to Antarctica based on Bellinghausen's early discovery of the Antarctic continent in 1820 (Rothwell, 1996; Triggs, 2011).

In light of this political turmoil, Antarctica became again "something of a no-man's land", as Turchetti et al. describe it, "no international recognition was given to existing sovereignty claims, so states were free to place bases anywhere" (2008, p. 354). Various attempts from different nations to solve the sovereignty problem failed, including India's proposal to redirect the Antarctic question to the General Assembly of the United Nations (Triggs, 2011).

The International Geophysical Year (IGY) (1957-58) is often referred to as a 'turning point' in Antarctic affairs and as having paved the way for the adoption of the Antarctic Treaty a year later in 1959 (Walton, 2013b). The IGY led to Antarctic scientific research becoming a major focus on the continent. In order to reinforce international scientific cooperation, the International Council for Scientific Unions (ICSU) established the Special Committee on Antarctic Research (SCAR – later renamed to Scientific Committee on Antarctic Research) (Triggs, 2011; Turchetti et al., 2008). Twelve nations participated in the Antarctic component of the IGY, including all Antarctic claimant states, the United States and the Soviet Union, as well as Japan, Belgium and South Africa (Walton, 2013b). Dodds (2010a) emphasises that the IGY Antarctic programme was intended for claimant states to accept the fact that all participating nations would be able to operate in Antarctica (including the establishment of research stations) regardless of existing territorial claims.

Most of the claimant states (Argentina, Australia, Chile, France, New Zealand, the United Kingdom) had already established stations on Antarctica, although some of them decided to build new stations for the IGY. All other participating nations built new stations in Antarctica for the IGY as well (Dodds, 2010a). The United States decided to build their station at the South Pole, while the Soviet Union chose the Pole of Inaccessibility as location for their station. These site selections have been interpreted by some scholars as motivated by political strategy rather than their scientific merit, arguing that these sites are logistically rather problematic (Turchetti et al., 2008; Walton, 2013b). However, even though the protection of national interest was paramount, government leaders recognised science as a "tool of diplomacy" to overcome gridlocked political negotiations (Triggs, 2011, p. 41). With the close of the IGY in 1958, the United States government under President Eisenhower invited the other IGY Antarctic parties to attend a conference in Washington, D.C. in 1959. On 1 December 1959, after six weeks of negotiations, Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, the Soviet Union, South Africa, the United Kingdom, and the United States adopted the Antarctic Treaty, which entered into force eighteen months later on 23 June 1961 (Triggs, 2011).

3.2. The Antarctic Treaty System

Antarctica, today, is managed under an international regime known as the Antarctic Treaty System (ATS) (Joyner, 1998; Stokke & Vidas, 1996; van der Lugt, 1997). International regimes have been defined as "principles, norms, and decision-making procedures around which actor expectations converge in a given issue-area" (Krasner, 1983, p. 185; see also Joyner, 1998). This rather broad definition of regime is somewhat similar to Ostrom's definition of institutions (Chapter 2). Both definitions refer to a given structure of different types of guidelines and criteria that regime stakeholders are mutually exposed to and that frame their actions within the regime or institution. An alternative regime definition is offered by Dimitrov (2006), who defines an international regime as an official, entered into force and legally binding, intergovernmental policy agreement. Dimitrov further distinguishes a regime from a 'nonregime', such as political efforts to create a regime but where negotiations failed to initiate collective action (ibid.). As Ostrom's concept of institutions will be integrated in the further course of this framework analysis and to prevent confusion, the ATS regime is discussed below as a set of multilateral agreements among states (Haggard & Simmons, 1987).

The ATS consists of the already mentioned Antarctic Treaty (signed in 1959 and entered into force in 1961) at its heart, and a number of complementary instruments contributing further principles, norms and practises, which have been added to the Treaty over time (Blumenfeld, 2010; Dodds, 2010a; Haward, 2013). All complementary instruments address conservation in the Antarctic, which the Antarctic Treaty does not deal with (Rothwell, 1990). The Treaty System's approach to Antarctic conservation primarily involves the establishment of suitable standards for human activity in the region and usage of Antarctic resources. A first result of such efforts was the Agreed Measures for the Conservation of Antarctic Fauna and Flora (adopted in 1964), which emphasises the "defencelessness and susceptibility to extermination" of Antarctica's fauna and flora (Preamble). The measures promote the minimisation of harmful inferences for Antarctic environments and wildlife due to human activities in the area (Article VII). The "killing, wounding, capturing or molesting of any native mammal or native bird" in the Antarctic area is only allowed on a small scale with a specific permission (Article VI). Under certain circumstances – such as scientific or educational purposes or, if necessary, for the self-preservation of expedition members – responsible contracting parties can issue permissions for the killing, wounding, capturing or molesting of Antarctic mammals and birds on a small scale. However, these regulations do not apply in the event of an emergency with human life at risk (Article V).

Concerns about the extent of commercial exploitation of seals in the Antarctic Treaty area led to the Convention for the Conservation of Antarctic Seals (CCAS – signed in 1972 and entered into force in 1978), which was the first independent treaty that was negotiated under the ATS (Auburn, 1990). In order to ensure the preservation of Antarctic seals, CCAS prohibits the killing or capturing of listed seal species living in the Antarctic area, unless a contracting party issues a special permit to kill or capture a limited number of seals to feed expedition members or for scientific or educational purposes (Articles 1, 2 and 4). The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR – signed in 1980 and entered into force in 1982) highlights the "importance of safeguarding the environment and protecting the integrity of the ecosystem of the seas surrounding Antarctica" (Preamble). While the Antarctic Treaty defines its purview to the area south of 60° South latitude (Article VI, Antarctic Treaty), CCAMLR extends all the way to the Antarctic Convergence (Article I, CCAMLR).

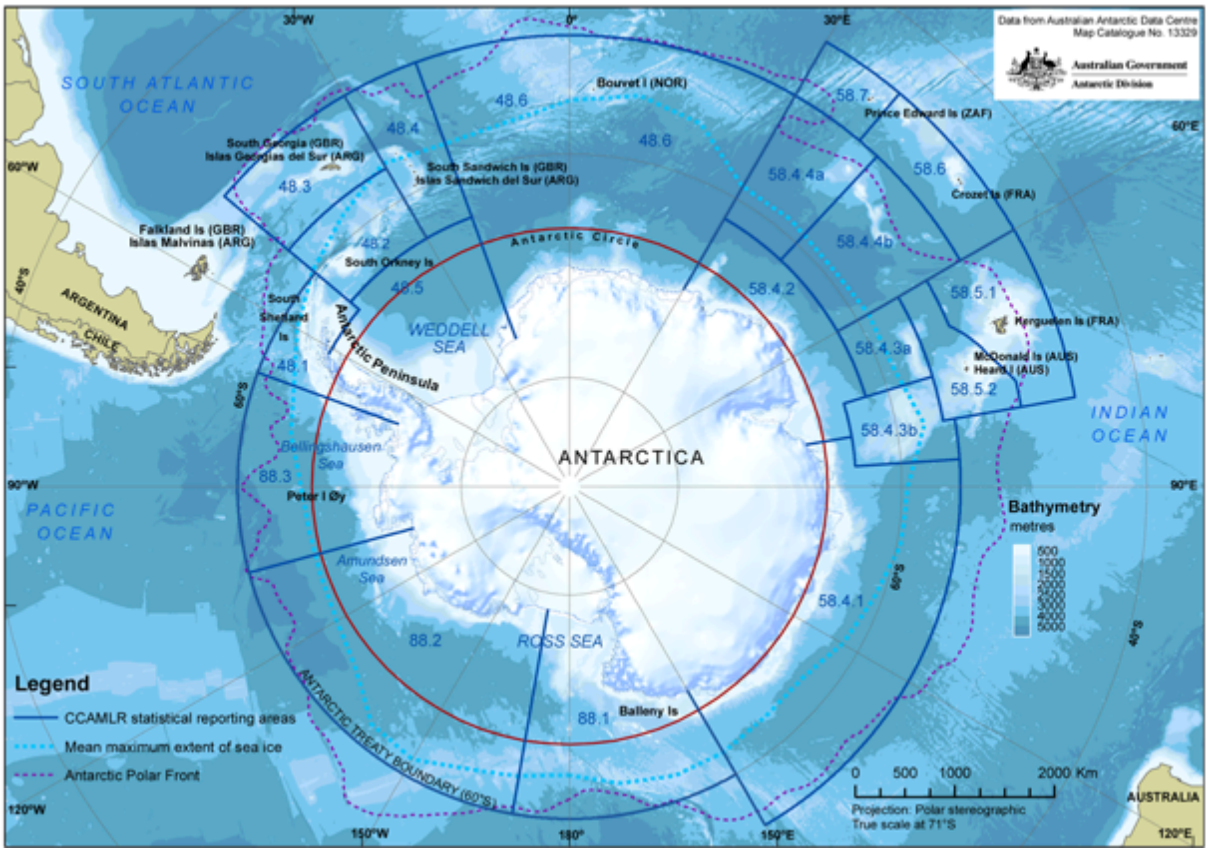

Figure 3.4: CCAMLR statistical reporting subareas – source: Australian Antarctic Data Centre

Antarctic marine living resources are declared to include "the populations of fin fish, molluscs, crustaceans and all other species of living organisms, including birds, found south of the Antarctic Convergence" (ibid.). The conservation of such Antarctic marine living resources under CCAMLR includes the "rational use" of the same (Article II). Both the Agreed Measures for the Conservation of Antarctic Fauna and Flora and the CCAS already mention the principle of the rational use of Antarctic resources in their preambles – alongside with the protection and scientific study of the same as their desired objectives. CCAMLR, however, describes upper limits to the rational use of Antarctic living marine resources based on requirements to ensure sustainable fisheries and marine ecosystems (Article II).

Interests in Antarctic mineral resources increased particularly after the oil crisis in 1973, with speculations circulating about deposits of oil and gas located underneath the ice (Orheim, 2013). Geological investigations had discovered several mineral deposits in Antarctica, but the concentration of such deposits was unknown. The high costs associated with the exploration, mining and transportation made the commercial exploitation of Antarctic mineral resources inefficient (French, 1999; Rothwell, 1990). Technological advancements for polar mining in the Arctic combined with the discovery of ethane and methane in the Antarctic in 1973, "forced the ATS to take anticipatory action and negotiate an Antarctic mineral regime before unregulated mining actually commenced" (Rothwell, 1990, p. 285). The question of the exploration and exploitation of Antarctic mineral resources was officially added to the agenda in 1977 (ibid.).

Between 1982 and 1988, regulations on Antarctic mining were negotiated and resulted in the adoption of the Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA), which set strict environmental protection standards and required consensus for any mineral resource exploitation or development activity. However, CRAMRA did not enter into force due to rejections from a number of negotiation parties (Blumenfeld, 2010; Dodds,

2010a; Orheim, 2013). Consequently, with regard to Dimitiov's definition of regimes, CRAMRA must be considered a 'nonregime'. The environmental movement, and in particular the lobbying efforts of environmental non-governmental organisations (NGOs), are usually assigned an important role in the failure of CRAMRA (Orheim, 2013). In launching Antarctic anti-mining campaigns during the negotiations, environmental NGOs provoked significant public and political pressure (Blay & Tsamenyi, 1990; Orheim, 2013; Sulikowski, 2013). After years of intensive negotiations, Australia and France rejected CRAMRA in 1989 and argued for a total mining ban in Antarctica. Other negotiation parties followed, including New Zealand (Rothwell, 1990).

The subsequent Protocol on Environmental Protection to the Antarctic Treaty (hereinafter referred to as the Madrid Protocol) prohibits any mineral resource activity in Antarctica that is not related to scientific research (Article 7). It was signed in 1991, only two years after the failure of CRAMRA, and entered into force in 1998 (Jacobsson, 2011). The Madrid Protocol could build on the ideas already established during the CRAMRA negotiations and include some of CRAMRA's innovations such as the liability aspect or special protected areas (Auburn, 1990; Orheim, 2013). However, the Madrid Protocol clearly sets its objective to "the comprehensive protection of the Antarctic environment and dependent and associated ecosystems" and designates "Antarctica as a natural reserve, devoted to peace and science" (Article 2) as proposed by Australia and France (French, 1999). With its comprehensive provisions for the protection and conservation of Antarctica the Madrid Protocol also superseded the Agreed Measures for the Conservation of Antarctic Fauna and Flora (Blumenfeld, 2010). Of particular importance are the six annexes to the Madrid Protocol, which "form an integral part thereof" (Madrid Protocol, Article 9). The Annexes address Environmental Impact Assessment (Annex I), Conservation of Antarctic Fauna and Flora (Annex II), Waste Disposal and Waste Management (Annex III), Prevention of Marine Pollution (Annex IV), Area Protection and Management (Annex V) and Liability Arising from Environmental Emergencies (Annex VI – not in force, yet) (Orheim, 2013).

Joyner (1998) suggests interpreting the ATS as a "web of overlapping and mutually reinforcing agreements that together govern state behavior in the Antarctic" (p. 66). In a broader context, Antarctic governance is further embedded in a global legal system, which goes beyond the ATS's competency and encompasses further international legal instruments that also apply to Antarctica (Vigni, 2000). Such instruments include the International Convention for the Regulation of Whaling (ICRW, signed in 1946 and entered into force in 1948), the Convention on the Conservation of Migratory Species of Wild Animals (CMS, signed in 1979 and entered into force in 1983), the United Nations Convention of the Law of the Sea (UNCLOS, signed in 1982 and entered into force in 1994 – but has not been ratified by the USA), the Convention on Biological Diversity (CBD, signed in 1992 and entered into force in 1993), the United Nations Framework Convention on Climate Change (UNFCCC, signed in 1992 and entered into force in 1994), as well as various regulations by the International Maritime Organisation (IMO) and Regional Fisheries Management Organisations (RFMOs) (Joyner, 1998; Rothwell, 1996). Committed to international peace, in its Preamble the Antarctic Treaty explicitly embraces the principles expressed in the Charter of the United Nations (UN Charter).[25] The Antarctic Treaty encourages cooperation with United Nations specialised agencies or other international organisations (ibid.).

[25] Principles include international peace and security, equal rights and self-determination of peoples, international cooperation, respect for human rights and fundamental freedom for all (Chapter 1, UN Charter).

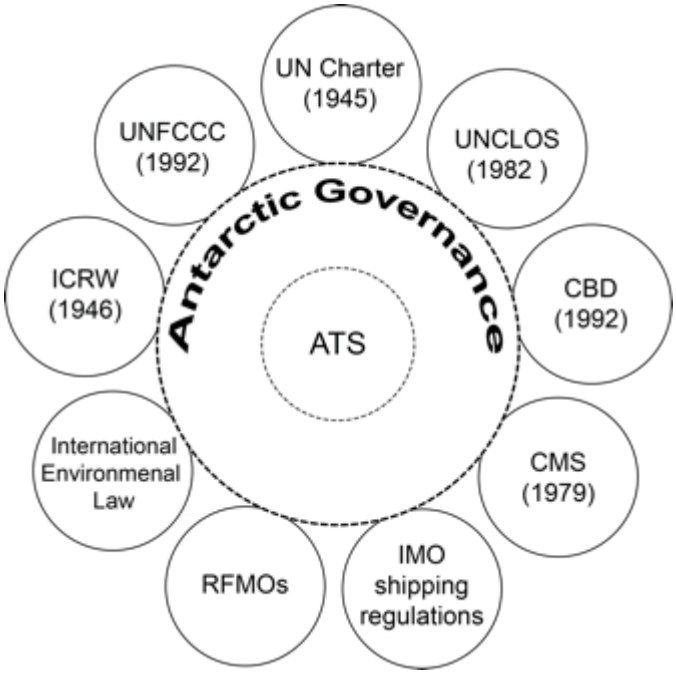

Figure 3.5: Antarctic government in a broader context (adapted from Joyner (1998), p. 97)

In this global context, then, the ATS becomes a subsystem – in the sense of the ACF (see Chapter 2) – within a broader framework of principles and standards on a global scale that likewise apply to Antarctica. With reference to the ACF, Antarctic policy can be further understood through its underlying belief-system, which includes deep core beliefs, policy core beliefs and secondary beliefs. In the Antarctic case, deep core beliefs refer to what French (2008, 2012) calls "meta-principles" or "global principles". French identifies three different types of such principles: (a) principles expressed within the ATS of rather generic nature (e.g., conservation and the protection of nature); (b) principles of the UN Charter incorporated in the Antarctic Treaty that are of the same generic nature (e.g., international peace, security and cooperation); (c) similar principles embedded in international law (e.g., fairness, participation, transparency). French makes no clear division between principles and values; instead, he refers to the types of principles mentioned above simultaneously with principles and values (French, 2012).

Values, as proposed by Rokeach (1968) and discussed in Chapter 1, are at the core of every belief system. Values, therefore, should exist at all three tiers of the belief system as introduced by the ACF. In line with the ACF logic, the narrower their scope, the more applied values become. Moreover, with respect to the theories on human values and behaviour – such as Schwartz's norm activation or the VBN theory – it can be further concluded that more applied values are linked to other elements that form behavioural norms.

The ACF states that policy core beliefs are applications of deep core beliefs. Similarly, the ATS applies global principles to the Antarctic. For example, the Antarctic Treaty, at the heart of the ATS, clearly states two basic pillars that it builds on: peace and the freedom of scientific investigation. In the Treaty's preamble the representatives of the signatory states declare that they recognise:

> "that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purpose and shall not become the scene or object of international discord."

The representatives further acknowledge the value of scientific knowledge that can be gained from international co-operations in scientific research in Antarctica, and claim

> "that the establishment of firm foundation for the continuation and development of such cooperation on the basis of freedom of scientific investigation in Antarctica as applied during the International Geophysical Year accords with the interest of science and the progress of all mankind."

These two key principles are repeated and refined in the following articles (Articles I-III) of the Antarctic Treaty. The protection of the Antarctic environment, a third key principle of the ATS, is not addressed in the Antarctic Treaty (Hemmings, 2012; Stokke & Vidas, 1996). The Madrid Protocol fills this gap while making certain types of Antarctic values explicit. Article 3 of the Madrid Protocol, dedicated to environmental principles, claims that

> "The protection of the Antarctic environment and dependent and associated ecosystems and the intrinsic value of Antarctica, including its wilderness and aesthetic values and its value as an area for the conduct of scientific research, in particular research essential to understanding the global environment, shall be fundamental considerations in the planning and conduct of all activities in the Antarctic Treaty area."

Notable is the inclusion of the terms wilderness and aesthetic values related to the idea of an intrinsic value of Antarctica in Article 3 of the Madrid Protocol. This incorporation of environmental ethics into the ATS (see Chapter 2) is a striking example of how the ATS, as a subsystem, can be influenced by external events of global scope (e.g., international social movements). French (1999) highlights the fact that the negotiations for the Madrid Protocol fell into the time when the concept of sustainable development emerged in preparation of the 1992 UN Summit in Rio (see Chapter 2). Although 'sustainable development' does not appear in the Madrid Protocol and its Annexes, principles and priorities set by the Madrid Protocol reflect the thinking surrounding the sustainability concept.[26]

The Madrid Protocol refers to a general balance between human activities in the Antarctic Treaty area and Antarctic environmental conservation. Article 3 (2c) of the Madrid Protocol states:

> "activities in the Antarctic Treaty area shall be planned and conducted on the basis of information sufficient to allow prior assessments of, and informed judgements about, their possible impacts on the Antarctic environment and dependent and associated ecosystems and on the value of Antarctica for the conduct of scientific research."

The Article follows by emphasising again the "priority to scientific research and to preserve the value of Antarctica as an area for the conduct of such research" (Article 3 (3), Madrid Protocol).

[26] The Brundtland Report draws on the belief that the biosphere's ability to compensate impacts of human activities is limited, but that social organisation and technology can be managed to limit human impact. The report explicitly mentions Antarctica in the context of the management of the commons (Chapter 10). It emphasises that the Commission "sees it as essential that the continent be managed and protected in a responsible manner that takes into account the common interests at stake" (World Commission on Environment and Development, 1987, Chapter 10, 88).

Secondary beliefs in the Antarctic case come to the fore when specific subject matters are discussed within the ATS. This will be the focus of the two case studies in the further course of the present thesis and discussed in more detail there.

3.2.1. The governance of the Antarctica commons

The ATS acknowledges some Antarctic economic resources, including marine and mineral resources, while recognising Antarctic wilderness and aesthetic values, as well as the region's value for scientific research. The question about ownership and legal status of Antarctica relates to the Antarctic sovereignty question, a major conflict issue as discussed in the previous section. Article IV of the Antarctic Treaty provides that the Treaty's content is not to be interpreted as a rejection of "previously asserted rights of or claim to territorial sovereignty in Antarctica" or of any basis of such claims. Neither is the Antarctic Treaty prejudicing the position of any party – which includes non-claimant states – "as regards its recognition or non-recognition of any other state's right of or claim or basis of claim to territorial sovereignty in Antarctica." But any new claims or enlargements of existing claims are prohibited under Article IV. Article IV, essentially, leaves "each state free to interpret the provision as it deems necessary to protect its juridical position", as Triggs states (2011, p. 43). Other scholars have described this arrangement as an agreement to disagree (Joyner, 1998). The inherent ambiguity of Article IV, however, enables the ATS to function by allowing states with different positions to be part of it and to govern Antarctica jointly (Joyner, 1998; Triggs, 2011). The still existing claims over Antarctic territories are often referred to as being "frozen" by the Antarctic Treaty (e.g., Orheim, 2013; Rothwell, 1990; Scott, K. N., 2003). This is crucial for Antarctica's status as a global commons, which, per definition, goes beyond the jurisdiction of one state. Antarctica is sometimes also referred to as an international space (Young, 2011).

However, Antarctica is not a clear case of a global commons (Buck, 1998; Joyner, 1998; World Commission on Environment and Development, 1987). Because of the different stances on sovereignty in Antarctica, the legal status of terra nullius does not apply. Also, considering Antarctica as a res communis is not without limitations. Although the Antarctic Treaty qualifies Antarctica as common property in terms of the freedom to conduct scientific research, access to Antarctica is limited in certain areas. For instance, in certain areas such as special protected areas[27] or special managed areas[28], access (and certain human activities) are restricted, or banned altogether (Joyner, 1998). These legal enclosures aim to protect the global commons based on the belief that free access would degrade Antarctic values (U.S. Congress Office of Technology Assessment, 1989, see also Annex V of the Madrid Protocol).

Generally, the application of the res communis concept to the Antarctic is problematic, because only a selected group of states is entitled to participate in Antarctic governance for the international community (Joyner, 1998). There have been attempts in the past, notably by ATS non-member states and NGOs, to introduce alternative global commons concepts to the Antarctic (Dodds, 2006; Elzinga, 2009; Haward, 2013). In the 1980s, Malaysia proclaimed Antarctica should be declared a common heritage of humankind under the auspices of the UN, while international environmental organisations led by Greenpeace tried to establish Antarctica

[27] Annex V of the Madrid Protocol defines Antarctic Specially Protected Areas as an area, including marine area that represents "outstanding environmental, scientific, historic, aesthetic or wilderness values". The entry into such areas is generally prohibited. Exceptions require an authorised permit.

[28] Annex V of the Madrid Protocol refers Antarctic Specially Managed Areas to those areas, including marine areas, "where activities pose risks of mutual interference or cumulative environmental impacts" or to "sites or monuments of recognised historic value" and, therefore, require special management efforts. Although entry to those areas is not generally prohibited, they may contain Antarctic Protected Areas, which require an authorised permit for entry.

as a world wilderness park (Elzinga, 2009). While the world park concept aroused interest of some – but not all – ATS member states (Rothwell, 1990), the idea of bringing Antarctica under common heritage of humankind status, has been emphasised in the literature as a severe challenge to the ATS as it questioned the ATS's exclusive legal competency (Dodds, 2006; Elzinga, 2009; Haward, 2013).

Although Malaysia's claim was discussed with the UN fora, there was little to no response from the economic and politically powerful Antarctic Treaty member states (Auburn, 1990; Rothwell, 1990). The ATS did, however, open up and become more transparent by including, *inter alia*, UN agencies and certain NGOs as observers to the policy-making process (Scott, K. N., 2003). The ATS membership had also grown since its establishment, and a number of developing states became ATS member states (ibid.). Auburn (1990) argues that with the accession of leading developing states such as India and Brazil, in addition to the joining of China to the ATS, it was clear that a takeover attempt by the UN would not succeed.

Antarctica as a global commons is controversial, mostly because different people have different ideas about how Antarctica as a global commons should be used. Against this background, the ATS becomes a balancing act relying on consensus among its member parties. Externalities can irritate the regime's balance at any time and may put the regime's robustness[29] to the test. Drawing on Dietz et al. (2003) and the general principles for robust governance of the commons, a closer look into the institutional structure of the ATS may allow an analysis of how these principles are manifested in Antarctic governance and policy practices.

3.2.2. Institutions of the ATS

As previously discussed, Ostrom defines an institution as "shared concepts used by humans in repetitive situations organized by rules, norms, and strategies" (2007, p. 23). Based on this definition, the following elaboration seeks to explain the rules, norms and strategies characterising the institutional structure of the ATS.

Starting with Article IX of the Antarctic Treaty, which provides that representatives of contracting parties shall meet regularly "for the purpose of exchanging information, consulting together on matters of common interest pertaining to Antarctica, and formulating and considering, and recommending to their governments, measures in furtherance of the principles and objectives of the Treaty". For that reason, Antarctic Treaty Consultative Meetings (ATCMs) are vital for Antarctic policy, because they constitute the core policy-making forum.

ATCMs were originally biennial meetings, but changed into annual meetings from 1991. The venue of the ATCM changes constantly and depends on the respective Host Government, a responsibility that rotates among the consultative parties (Orheim, 2013). The Antarctic Treaty conditioned a party's eligibility to participate in ATCMs to this party's demonstration of "its interest in Antarctica by conducting substantial scientific research activities there, such as the establishment of a scientific station or the despatch of a scientific expedition" (Article IX, Antarctic Treaty). The twelve original signatory states had all fulfilled this condition through their engagements during the IGY, as mentioned in the previous section. However, consultative status, which confers a party decision-making and policy-making power, requires a party to continuously demonstrate its interest in Antarctica (ibid.).

Since 1959, when the Antarctic Treaty was first signed, more states have signed the Treaty and became Antarctic Treaty Parties (ATPs) – although, not all of them gained consultative status.

[29] Regime robustness refers to the resilience of the regime against exogenous challenges and the level of institutional influence on collective decisions and behaviour (Hasenclever et al., 1997).

Non-Consultative Parties to the Antarctic Treaty are usually invited to participate in ATCMs and contribute to the discussions, but without any decision-making power. Figure 3.6 below illustrates the growth of ATPs from 1959 to 2011. Particularly striking is the rapid increase in ATCPs in the 1980s during the CRAMRA negotiations, when the management of Antarctic mineral resources was discussed (Orheim, 2013).

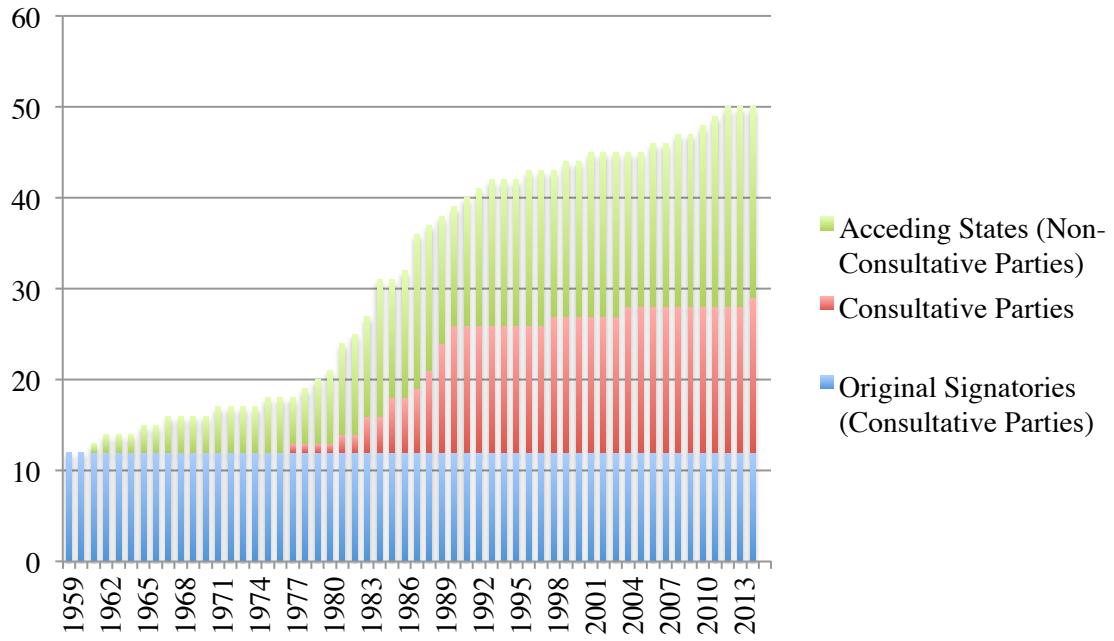

Figure 3.6: Growth in number of ATPs from 1959 to 2014 – source: Secretariat of the Antarctic Treaty

At the ATCMs, any technical means for Antarctic governance, including 'Measures', 'Decisions' and 'Resolutions', have to be adopted by consensus (Triggs, 2011 see also Decision 1 (1995) ATCM XIX). Together, these means "provide regulations and guidelines for the management of the Antarctic Treaty area and the work of the ATCM."[30] Only 'Measures' address mandatory obligations to ATCPs and, therefore, require approval from all ATCPs. 'Decisions' are also mandatory but, opposed to 'Measures', not legally binding as they address merely "internal organizational matter(s)" of the ATCM. 'Resolutions' involve "hortatory text", recommendations expressed at an ATCM (Decision 1 (1995), ATCM XIX). During the first ATCM in 1961, ATCPs adopted a set of rules of procedure for ATCMs. Over time, some amendments had to be made and adopted at subsequent ATCMs. The latest revision of the ATCM rules of procedure occurred in 2011 (see Decision 2 (2011), ATCM XXXIV).

Besides the Plenary, where the main consultations and discussions occur, ATCPs can also establish Working Groups (WGs) to "deal with various agenda items" (Rule 11). A preliminary agenda for an ATCM is set by ATCPs at the previous meeting (Rule 36). It is the responsibility of the following ATCM's Host Government to then prepare a provisional agenda, which has to be approved by all ATCPs at the meeting (Rule 38). Before the ATCM, however, ATPs have a chance to request supplementary agenda items to be considered in the provisional agenda (Rule 37). In addition, all ATCM participants can prepare and submit papers to the ATCM prior the meeting as discursive material (Rules 48-52). The final report to an ATCM, containing all Measures, Decisions and Resolutions adopted at the meeting as well as an account of its proceedings, has to be adopted by the majority of the present ATCPs at the meeting (Rule 25).

[30] cited from the Secretariat of the Antarctic Treaty: http://www.ats.aq/e/ats_meetings_atcm.htm – accessed: 15/05/2014

With the Madrid Protocol entering into force in 1998, a new institutional body within the ATS was established: the Committee for Environmental Protection (CEP) (Orheim et al., 2011). The Madrid Protocol defines the CEP as an expert advisory body to provide advice and formulate recommendations to both ATCMs and signatory states regarding the implementation of the Madrid Protocol including its Annexes (Madrid Protocol, Article 12). All parties, who have signed the Madrid Protocol, are entitled to become member of the CEP. The CEP is also open to parties that are not signatories of the Madrid Protocol, but are of the Antarctic Treaty, who may become observers to the CEP. Moreover, the CEP can invite further expert organisations to contribute as observers to the work of the CEP (Madrid Protocol, Article 11). The CEP meets annually and in conjunction with the ATCM (Orheim, 2013). Today, ATCMs are held over ten days beginning with the CEP meeting, which presents its report to the ATCM plenary in the further course of the ATCM (Orheim et al., 2011). Both CEP members and observers can prepare and submit relevant papers to the annual CEP meetings.

Beside the CEP, ATCPs created, a while later, another institutional body. At the ATCM XXIV in 2001 the establishment of a permanent Secretariat of the Antarctic Treaty (hereinafter referred to as the Secretariat) was decided, which opened in 2004 based in Buenos Aires, Argentina (Scott, K. N., 2003). This decision, however, was preceded by many years of controversial debates among the ATCPs. As the only physical office within the ATS, the major issue was a political one, associated with the question of the location of the Secretariat (Francioni, 2000). The United Kingdom, in particular, expressed reservations about Buenos Aires as choice of location, which some scholars attribute to the consistent underlying tensions between the United Kingdom and Argentina since the Falklands/Malvinas dispute (Dodds & Hemmings, 2014). Despite such political controversies, the Secretariat was finally established to support the annual ATCM and CEP meeting, facilitate the information exchange, and to provide and disseminate information about the ATS and activities in Antarctica.[31] The Secretariat also functions as the ATS archive; it collects, stores and archives ATCM documents and also makes these documents available to the public.[32]

In the development of the ATS, ATCPs found it necessary to hold more specialised meetings on certain issues apart from the ATCMs (Cohen, 2002). Such meetings are irregular and only occur when needed and officially approved at an ATCM. Between 1977 and 2000, twelve Special Antarctic Treaty Consultative Meetings (SATCM) have been held to discuss notifications from Antarctic Treaty Non-Consultative Parties to be considered for consultative status or to proceed negotiating supplement agreements to the Antarctic Treaty (e.g., CCAMLR, CRAMRA, Madrid Protocol), which are now part of the ATS (ibid.). These Special Consultative Meetings "may have rights of making decision, binding on participating Governments, limited to the specific purpose of the meeting" (Cohen, 2002, p. 122).

Antarctic Treaty Meetings of Experts (ATMEs), on the other hand, are defined as "a mechanism for in-depth study of a matter of common concern" and as such "not empowered to take decisions" (Cohen, 2002, p. 186). The report of an ATME, which is required to be submitted to the subsequent ATCM, includes recommendations to the ATCM resulting from discussions during an ATME. In the past, ATMEs have been tasked with questions of a rather technical nature such as meteorological observations, telecommunication, air safety or environmental monitoring (ibid.). Lately, ATMEs have been convened to deal with more complex issues including the handling of increased tourism and maritime traffic as well as climate change.[33] ATCPs are entitled to both send their own experts to the meeting and to

[31] see information provided by the Secretariat of the Antarctic Treaty: http://www.ats.aq/e/about.htm – accessed: 15/05/2014
[32] ibid.
[33] see information provided by the Secretariat of the Antarctic Treaty: http://www.ats.aq/devAS/ats_meetings.aspx?lang=e – accessed: 16/05/2014

invite experts from Non-Consultative Parties as well as relevant international organisations (Cohen, 2002).

Another institutional mechanism with the purpose of assisting the ATCMs are the Intersessional Contact Groups (ICGs). ICGs have been initiated by the CEP in order to "moving matters forward" in between ATCMs and CEP meetings (CEP I final report). ICGs are informal and with no physical meetings, and as such rely on online communication (ibid.).

3.2.3. Political actors within the ATS

In line with the increased complexity of the ATS's institutional structure, the network of political actors involved in the policy-making within the ATS grew as well. The crucial role of actors involved in policy-making was stressed in both theories of policy processes introduced in Chapter 2 of the present thesis, the IAD Framework and the ACF. In the context of the ATS, political actors refer to national governments, intergovernmental or international non-governmental organisations and their representatives participating in Antarctic policy processes in one way or the other. Antarctic policy processes primarily focus on ATCMs but may also include more specialised meetings and inter-sessional consultation apart from ATCMs. The roles of ATCPs and Antarctic Treaty Non-Consultative Parties were introduced above. Tables 3.1 and 3.2 list states that are currently member parties to the ATS either with or without consultative status. By April 2015, forty states had joined the original twelve Antarctic Treaty signatories, adding up to a total of fifty-two ATPs today (twenty-nine ATCPs, twenty-three Non-Consultative Parties, see Table 3.2).

Considering the criticism brought forth against the ATS as a non-representative, elitist group of states managing an global commons (Antarctica), it may be worth noting that ATS member states still encompass around two-thirds of the world's human population. However, in terms of the cultural diversity among ATPs, it must be admitted that there is only one African state represented in the ATS (i.e., South Africa). Further, Malaysia, Pakistan and Turkey are the only Muslim-majority states and only recently signed the Antarctic Treaty (Orheim, 2013).

Besides Consultative Parties and Non-Consultative Parties, Observers to the Antarctic Treaty also play an important role in Antarctic policy processes. SCAR was given special observer status to ATCMs since the very first meeting to provide scientific advice to the ATCM (Orheim et al., 2011; Orheim, 2013). The same status has been given later to the Council of Managers of National Antarctic Programs (COMNAP) formed in 1988 (Orheim, 2013; Wratt, 2013). As Observer to the ATCM, COMNAP provides expertise on operational matters in the Antarctic region (Wratt, 2013). A third body that currently holds observer status at ATCMs is CCAMLR, who is primarily responsible for the fisheries management in the Antarctic (Miller, 2011).

Another category of political actors that the ATS recognises and invites to its meetings, are Experts. Compared to Observers, Experts do not have a permanent status at ATCMs but require an invitation to participate in any ATS meeting (Hemmings, 2010; Herr, 1996). Expert organisations that are acknowledged by the ATS include the Antarctic and Southern Ocean Coalition (ASOC), the International Association of Antarctica Tour Operators (IAATO), the International Hydrographic Organization (IHO), the International Maritime Organization (IMO), the Intergovernmental Oceanographic Commission (IOC), IUCN, the Pacific Asia Travel Association (PATA), UNEP, the World Meteorological Organization (WMO) and the World Tourism Organization (WTO).[34] Both Observers and Experts solely have an advisory

[34] see information provided by the Secretariat of the Antarctic Treaty: http://www.ats.aq/e/info_links.htm – accessed: 16/05/2014

capacity with no decision-making power. Figure 3.7 presents a schematic model of the ATS including its legal instruments and network of different group of political actors involved.

Table 3.1: List of Consultative Parties to the ATS (by April 2015) – source: Antarctic Treaty Secretariat

Country	Entry into force	Consultative status	Madrid Protocol	CCAS	CCAMLR
Argentina*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
Australia*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
Belgium*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
Brazil	16 May 1975	27 Sep 1983	14 Jan 1998	X	X
Bulgaria	11 Sep 1978	5 Jun 1998	21 May 1998		X
Chile*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
China	8 Jun 1983	7 Oct 1985	14 Jan 1998		X
Czech Republic	14 Jun 1962	1 Apr 2014	24 Sep 2004		
Ecuador	15 Sep 1987	19 Nov 1990	14 Jan 1998		
Finland	15 May 1984	20 Oct 1989	14 Jan 1998		X
France*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
Germany	5 Feb 1979	3 Mar 1981	14 Jan 1998	X	X
India	19 Aug 1983	12 Sep 1983	14 Jan 1998		X
Italy	18 Mar 1981	5 Oct 1987	14 Jan 1998	X	X
Japan*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
Korea (ROK)	28 Nov 1986	9 Oct 1989	14 Jan 1998		X
Netherlands	30 Mar 1967	19 Nov 1990	14 Jan 1998		X
New Zealand*	23 Jun 1961	23 Jun 1961	14 Jan 1998		X
Norway*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
Peru	10 Apr 1981	9 Oct 1989	14 Jan 1998		X
Poland	23 Jun 1961	29 Jul 1977	14 Jan 1998	X	X
Russian Federation*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
South Africa*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
Spain	31 Mar 1982	21 Sep 1988	14 Jan 1998		X
Sweden	24 Apr 1984	21 Sep 1988	14 Jan 1998		X
Ukraine	28 Oct 1992	4 Jun 2004	24 Jun 2001		X
United Kingdom*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
United States*	23 Jun 1961	23 Jun 1961	14 Jan 1998	X	X
Uruguay	11 Jan 1980	7 Oct 1985	14 Jan 1998		X

* Original signatories

Table 3.2: List of Non-Consultative Parties to the ATS (by April 2015) – source: Antarctic Treaty Secretariat

Country	Entry into force	Madrid Protocol	CCAS	CCAMLR
Austria	25 Aug 1987			
Belarus	27 Dec 2006	15 Aug 2008		
Canada	4 May 1988	13 Dec 2003	X	X
Columbia	31 Jan 1989			
Cuba	16 Aug 1984			
Denmark	20 May 1965			
Estonia	17 May 2001			
Greece	8 Jan 1987	14 Jan 1998		X
Guatemala	31 Jul 1991			
Hungary	27 Jan 1984			
Kazakhstan	27 Jan 2015			
Korea (DPRK)	21 Jan 1987			
Malaysia	31 Oct 2011			
Monaco	31 may 2008	31 Jul 2009		
Mongolia	23 Mar 2015			
Pakistan	1 Mar 2012	31 Mar 2012		X
Papua New Guinea	16 Mar 1981			
Portugal	29 Jan 2010	10 Oct 2014		
Romania	15 Sep 1971	5 Mar 2003		
Slovak Republic	1 Jan 1993			
Switzerland	15 Nov 1990			
Turkey	24 Jan 1996			
Venezuela	24 Mar 1999	31 Aug 2014		

As mentioned earlier, all ATCM participants are entitled to prepare and submit papers to the ATCMs or enacted special meetings. The submission of papers is a tool that is open to all ATPs, Observers or Experts that can have an impact on the meetings' discussions in one way or another. However, because only ATCPs are empowered to make decisions under the ATS, the submission of papers is particular important for Non-Consultative Parties, Observers and Experts to influence Antarctic policy. The ATCM recognises four different types of papers for submission to the ATCM including Working Papers (WPs), Secretariat Papers (SPs), Information Papers (IPs) and Background Papers (BPs) (Decision 2 (2011), ATCM XXXIV, Rules 48-52).

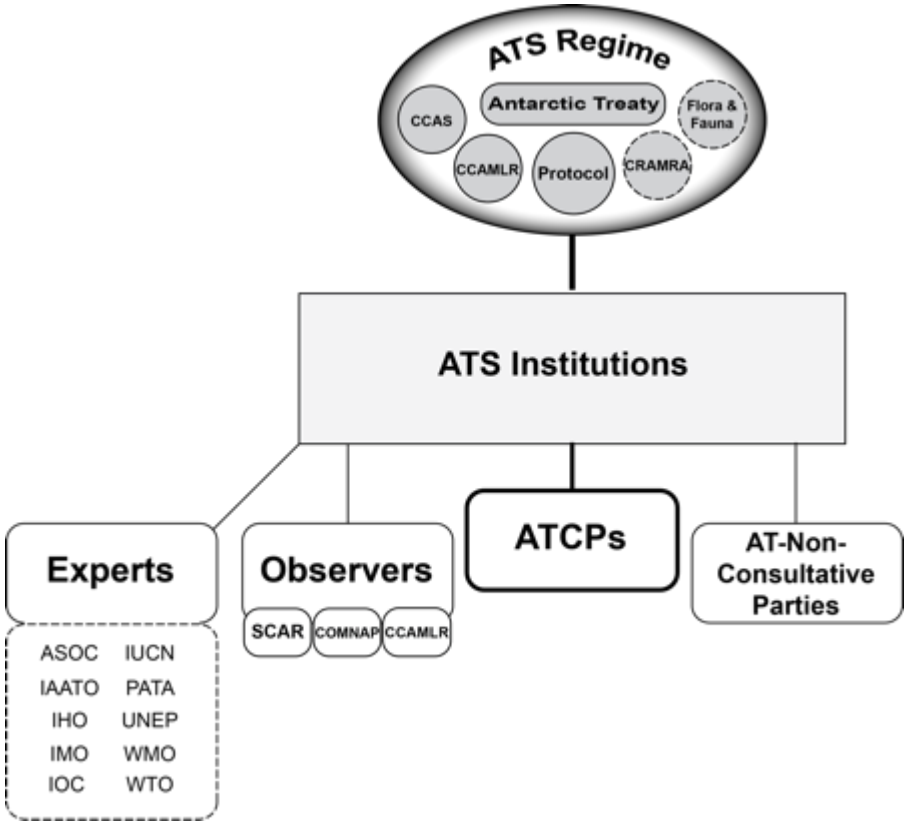

Figure 3.7: Schematic model of the ATS including legal instruments and political actors

Only ATCPs and Observers can submit WPs, which "require discussion and action at a Meeting" (Rule 48). The Antarctic Treaty Secretariat can prepare and submit SPs "to a mandate established at a Meeting" or to "help inform the Meeting or assist in its operation" (Rule 49). IPs can be submitted by all ATCM participants – including ATCPs, Non-Consultative Parties, Observers and Experts – to provide relevant information to discussions at the ATCM (Rule 50). BPs are another way for ATCM participants to formally provide information, but these documents are not discussed in the Meetings themselves (Rule 51) and therefore are of little importance.

The ATS represents global governance, regardless of the restrictions to Antarctica's status as a global commons mentioned above. Global governance, in the scope of the present thesis, refers to the challenge of making decisions collectively for collective problems where collective actions are needed (Sinclair, 2012; Stokke, 1997). What is particularly challenging for ATCMs, as the forum in which decision are made, is consensus decision-making among currently twenty-nine decision-makes (ATCPs) with various cultural backgrounds. Both the effectiveness and the robustness of the ATS has been questioned by several scholars (Dodds, 2010a; Hemmings, 2014; Joyner, 2011; Stokke & Vidas, 1996). Others, on the other hand, in highlighting the ATS as a success story of environmental policy, suggested the ATS to be a model for other places on Earth such as the Arctic (Blumenfeld, 2010).

The governance system of the ATS is indeed unique in its dedication to peaceful activities and scientific research and in the way in which it puts a decision on sovereignty in abeyance. In the Arctic, dramatic recent environmental change and increasing global interests in Arctic natural resources and economic opportunities are causing serious tensions between coastal states in terms of territorial sovereignty. This development is stimulating discussions around the applicability of Antarctic precedents and lessons in science diplomacy to the Arctic case (Berkman & Young, 2009; Cava et al., 2011). Based on the elaborations on the ATS institutional structure and its inherent network of political actors, it is now possible to test the

ATS against general principles for robust governance of environmental resources as suggested by Dietz et al. (2003).

3.2.4. General principles for robust governance of the commons and the ATS

As mentioned in Chapter 2 and illustrated in Figure 2.2, Dietz et al. (2003) identified eight principles for robust institutionalised governance of environmental resources. In the Antarctic case, environmental resources refer to Antarctica as a whole including its natural resources and immaterial values as defined in the ATS. As such, Antarctic goods are neither private nor exclusive to any individual and can clearly be considered as commons. In this section, it will be discussed to what extent Dietz et al.'s principles can be applied to the Antarctic case.

'Devise rules that are congruent with ecological conditions'.

As shown above, ATCPs developed extensive conservation rules between the 1960s and 1990s including CCAS, CCAMLR and the Madrid Protocol. In addition to these agreements, ATCPs can and have used measures, decisions and resolutions to refine conservation rules in Antarctica. For example, at the ATCM XXXIV in 2011 ATCPs decided on Resolution 3, which defines *General Guidelines for Visitors to the Antarctic*. Beside ATS rules, there are further rules provided by international laws and conventions that have been mentioned above.

'Clearly define the boundaries of resources and user groups'.

Peace and science as a goal in Antarctica are repeatedly mentioned in the ATS. Under the umbrella of these two objectives, the Antarctic can be used by everyone – in principle. However, some control mechanisms are also built into the ATS. Article VII (5) of the Antarctic Treaty requires ATPs to inform one another in advance about their activities in the Antarctic area. The Madrid Protocol extends this requirement to all "scientific research programmes, tourism and all other governmental and non-governmental activities in the Antarctic Treaty area" (Article 3 (4), Madrid Protocol). In Article 8 of the Madrid Protocol it is stated that a prior assessment of the potential impact of any activity to the Antarctic environment and ecosystems is required, which has to be passed with minor or less than minor or transitory impacts. Otherwise the planned activity will be declined by responsible authorities (ATPs). The exploitation of Antarctic mineral resources is prohibited by Article 7 of the Madrid Protocol, with the exception of scientific research purposes. CCAS provides that seals are not to be killed or captured. Further, CCAMLR decreed that all Antarctic marine living resources be conserved, which includes rational use (Article II, CCAMLR).

All these provisions, however, are only binding to contracting parties, which means that non-signatory states are legally not obliged to act on these provisions. Therefore, overarching international laws and conventions in line with the ATS are of critical importance. Due to existing international conventions, the ATS can allow gaps in its legal system, such as the regulation of whaling in the Antarctic area (the IWC in the case of whaling). However, such international provisions do not protect against conflicts. For example, the IWC put a temporary hold on commercial whaling on all stocks, which includes the Antarctic region (commercial whaling moratorium, IWC Schedule, 1982). Since the austral summer season of 1985/1986, commercial whaling is only possible with special permits. Japan, however, issued scientific permits for whaling in the Antarctic every year.[35] Japan's whaling activities in the Southern Ocean has stressed the relationship between Japan and Australia in particular and led to a legal dispute between the two states (Dodds, 2010a; Joyner, 2011). Only recently, the International Court of Justice (ICJ) decided against Japan, forcing the Japanese government to halt Antarctic whaling (*Whaling in the Antarctic (Australia v. Japan: New Zealand Intervening)*, 2014). The

[35] See information provided by the IWC: http://iwc.int/permits - accessed: 01/06/2014

issue of whaling in the Antarctic and the judge's decision point out weaknesses within the ATS in terms of two further principles for robust governance of the commons in the Antarctic.

'Device accountability mechanisms for monitors' and *'Apply graduated sanctions for violations'*.

Although the Antarctic Treaty grants ATCPs the right to carry out inspections in order to promote the Treaty's objectives and to ensure the observance of its provisions (Article VII, Antarctic Treaty), there is no Antarctic police force. Individual nation states assume the responsibility for jurisdiction in the area covered by the Antarctic Treaty (Article VIII, Antarctic Treaty). Therefore, the ATS relies heavily on conformity and compliance among ATPs to achieve its objectives. In this sense, the management of the Antarctic commons is essentially a "behavioral problem", in which both "individuals and governments must act responsibly and assertively" (Joyner, 1998, p. 43).

'Establish/use low-cost mechanisms for conflict resolution'.

The Japan versus Australia case, however, serves as a positive example of Dietz et al.'s principle 'Establish/use low-cost mechanisms for conflict resolution' for the ATS. A decision by the ICJ is not necessarily a low-cost mechanism to solve a conflict, but the example demonstrates a dispute between two ATCPs, which was fought and resolved outside the ATS, as Article XI of the Antarctic Treaty requires and in accordance with Article 19 of the Madrid Protocol.

The remaining three general principles for robust governance of the commons Dietz et al. qualified as being particularly important regarding large-scale environmental problems include climate change.

'Involve interested parties in informed discussion of rules'.

The principle of involving interested parties in discussions of rules has been also referred to "analytic deliberation" (Dietz et al., 2003, p. 1910). Discussions on rules by ATCMs are key for Antarctic governance. As shown above, ATCMs bring together representatives of numerous states, independent Observers with expertise in Antarctic science, operational matters and fishing management, in addition to Expert organisations, including NGOs, with interest in environmental issues, tourism, international law, shipping, meteorology, etc. Although not entitled to participate in final decisions, Observers and Experts are actively involved in ATCMs by informing the meeting through paper submission and joining the discussions during the ATCM.

'Allocate authority to allow for adaptive governance at multiple levels'.

The principle of allocating authority (also referred to "nesting") does not apply to Antarctica in a narrow sense as there is no regional or local government in Antarctica. However, ATPs have the responsibility to implement ATS policies into their relevant national legal systems (Article XIII, Antarctic Treaty). Moreover, ATP delegates to ATCMs or other ATS meetings may vary from meeting to meeting in terms of their affiliation. It is up to the ATP to decide whom to send to ATS meetings representing them (Article IX (2), Antarctic Treaty). Background and affiliation (e.g., governmental agency, military, research institute, etc.) of ATP delegates may indicate priorities the ATP sets.

'Employ mixtures of institutional types'.

Finally, the principle of employing mixtures of institutional types (in short, "institutional variety") finds confirmation within the ATS in the different types of meetings the ATS established as well as institutional bodies with different focuses and functions. Beside the ATCMs, the core policy forums, specialised and inter-sessional meetings can be convened

when needed. Permanent institutional bodies such as the CEP and the Secretariat assist and contribute to the ATCMs with expertise in conservation policies and administration as well as internal and external communication.

3.3. Challenges to the ATS

In 2011, the ATS celebrated its fiftieth anniversary since the Antarctic Treaty's coming into force. During that time, the ATS weathered both internal and external challenges, such as the Antarctic minerals debate including the public pressure supported by campaigns of international environmental NGOs, and Malaysia's attempt to bring Antarctica – as a common heritage of humankind – under the responsibility of the UN (Haward, 2013). Despite the robustness the system showed in the past, several scholars have highlighted several current or potential future challenges that will continue putting the ATS to the test (Chown et al., 2012; Dodds, 2010a; Hemmings, 2009, 2014; Joyner, 2011; Orheim, 2013). Challenges they mention include the remaining, unsolved problem of sovereignty, increased tourism in Antarctica, the internationalisation of ATPs and increased activities by NAPs, ethically controversial activities such as bioprospecting, expansion of fishing areas and illegal fishing in Antarctic waters, impact of climate change on Antarctica and the introduction of invasive species (ibid.).

Hemmings et al. (2012) summarise these issues under the aspect of security. Security was identified by both Rokeach and Schwartz as a human value with reference to the private and the social sphere (see Chapter 1). As a basic human value, security was considered as a personal value on the individual level. Hemmings et al., however, focus on the notion of security as a human construct shaped by political and public discourse. As such, the security concept has developed over time to a multi-faceted concept with different applications. While in times of the Cold War, security was mainly about the protection of the state and national interests, today, security can refer to "the economy, environment, food, resources and health" (Hemmings et al., 2012, p. xviii). In this broader sense, security concepts can include a variety of value-motivated goals such as safety, control over resources or the preservation of the environment, among others. For the Antarctic context, Hemmings et al. identify five different applications of security concepts: (1) international security, (2) state security, (3) regime security, (4) maritime security, and (5) environmental, resource and human security. In the light of these security classifications, contemporary challenges to the Antarctic and the ATS, as perceived according to the literature, are discussed in more detail below.

3.3.1. International security

International security comes with the same conditions for Antarctica, as for any other place (Hemmings et al., 2012). Responsibility for the maintenance of international peace and security lies with the UN Security Council according to Article 24 of the UN Charter. Considering the Council's authority to decide on military actions in case of an existing "threat to the peace, breach of peace, or act of aggression" (Article 39, UN Charter), international security embraces the traditional meaning of security as mentioned in the previous section. Due to the requirement of demilitarisation set by the Antarctic Treaty (Article I), there are no regional security arrangements in Antarctica. Examples such as the Falklands/Malvinas War in 1982 demonstrate how Antarctica and the Southern Ocean are not safe from military conflicts arising outside the ATS (Rothwell et al., 2012). Moreover, following the September 2001 terrorist attacks upon the United States, in 2002 the United States Department of Defence assigned Antarctica, among other places, to its Unified Command Plan (UCP), which provides guidance and operational instructions on a global basis to commanders of all branches of the United States armed forces (Dodds & Hemmings, 2008; Drea et al., 2013; Rothwell et al., 2012).

Therefore, challenges for the ATS are, also external events that have major impacts on international policies and underlying ideas of world order (Dodds, 2010a).

3.3.2. State security

State security is closely related to international security. For the Antarctic case, Rothwell et al. (2012) emphasise the consideration of two different contexts for state security. On the one hand, there are the Antarctic claimant states. Alongside the territorial claims to the Antarctic continent, Antarctic claimant states started to make submissions to the UN Commission on the Limits of the Continental Shelf (CLCS) over the last decade to secure their rights over the extended continental shelf (ECS) attached to Antarctic territories where claims exist (Dodds, 2010b; Joyner, 2011; Rothwell et al., 2012). This situation has potential for conflict between claimant and non-claimant states operating in the Antarctic over access to possible hydrocarbon resources offshore the Antarctic continent (Joyner, 2011). The other context for state security in Antarctica relates to states with interest in the Antarctic region that are operating there, for instance by having a scientific stations in Antarctica, ships or aircrafts navigating in the region, or personnel based there (Rothwell et al., 2012). Brady (2013) stresses that the massive investments in Antarctic operations in recent years by China, India and the Republic of Korea, including the construction of new stations in Antarctica as well as ice breakers, influence the power relations within the ATS as consultative status is directly linked to a state's demonstration of its interest in Antarctica. Changes in power relations pose another challenge to the ATS (ibid.).

3.3.3. Regime security

Regime security, in turn, is closely linked to state security. As mentioned in the previous section, the number of ATPs have increased significantly since the signing of the Antarctic Treaty, particularly during the 1980s, and this broadened the ATS membership's geographic representation. However, Hemmings (2014) cautions to not equate this fact with existing internal justice and equity. "[T]he effects of Antarctica's newer states are not evident in any new developments, or in any obvious blocking of particular developments" (Hemmings, 2014, p. 60). For example, ATCM working groups, which play a key role in the way the ATCM conducts its business, have been mostly chaired by the claimant states (Hemmings, 2014).

Moreover, a study of ATCPs' scientific research output (between 1980 and 2004) shows that the most productive states were the United States and the United Kingdom, followed by Australia and Germany (Dastidar & Ramachandran, 2008). Given that science is a core value in the Antarctic Treaty, scientific research outputs of ATCPs are considered an important indicator of their influence and engagement in Antarctica (Brady, 2013). Another study, considering the numbers of both scientific publications in peer-reviewed journals and Working Papers submitted to ATCMs or CEP meetings by ATCPs, concludes that "at present the Treaty remains effectively a select club dominated by the claimant nations and the Cold War warriors (USA and Russia)" (Dudeney & Walton, 2012, pp. 7–8). Apart from the imbalance in influence among ATS decision-makers, Hemmings (2014) further emphasises that the ATS, today, seems to have lost its erstwhile progressiveness and, on the contrary, has fallen behind compared with global developments. But there is doubt that the ATS would survive another fifty years without updating the system (Hemmings, 2014, p. 73).

For two decades there has been no new instrument added to the ATS. Consequently, more recent issues, such as bioprospecting or tourism, are not dealt with as thoroughly as earlier resource management issues (Rothwell et al., 2012). To date there is no agreed definition of

bioprospecting, but in the Antarctic context bioprospecting usually refers to a form of "scientific research on flora and fauna in and around Antarctica (...) with the aim of discovering commercially beneficial genetic and biochemical resources" (Joyner, 2011, p. 98). This activity has been heavily criticised by several scholars, primarily for ethical reasons (Guyomard, 2010; Hemmings, 2010; Jabour, 2010; Leary & Walton, 2010). The issue has been discussed within ATCMs since 1999 (Lohan & Johnston, 2005). Because of its commercial background, bioprospecting raises the question of ownership in the Antarctic context (Hemmings & Rogan-Finnemore, 2008; Orheim, 2013). There are also potential future challenge to the ATS in a possible re-awakening of "latent 'Third World anxieties' over Antarctic governance, which, when combined with the contemporary development of global justice concepts, could result in renewed calls for modification of the Antarctic governance model" (Rothwell et al., 2012, p. 9).

Tourism has been on the ATCM agendas for much longer than bioprospecting (since 1966). Regular voyages to the Antarctic operated by the tourism industry started in the late 1960s (Headland, 1994; Liggett et al., 2011; Reich, 1980). The management issue related to tourism activities in the Antarctic is usually mentioned in the context of its enormous growth, particularly during the 1980s and 1990s as Figure 3.8 demonstrates (Lamers et al., 2008; Landau, 2011; Liggett et al., 2011; Verbitsky, 2013a).

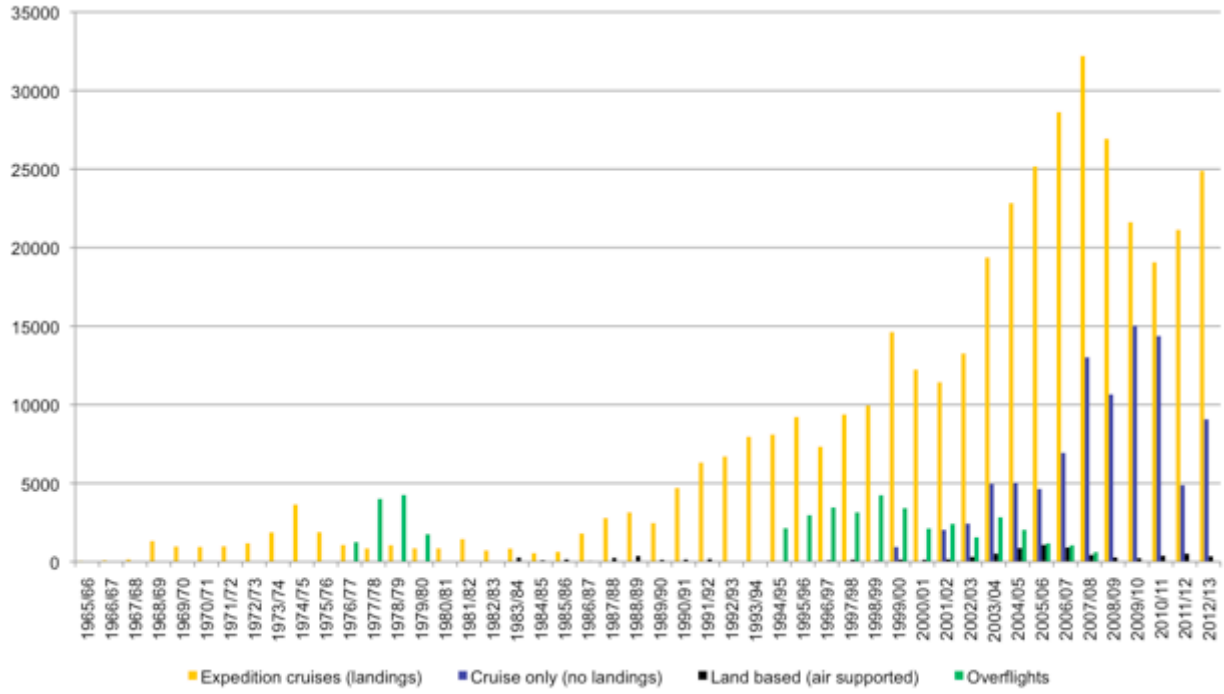

Figure 3.8: Estimated numbers of Antarctic tourists between 1965/66 and 2012/13 – source: Liggett (2013)

Although the numbers of tourists visiting Antarctica decreased since 2008, tourism remained a point of contention at ATCMs. There are differing views among ATPs on tourism activities in the Antarctic, which can be related to differing experiences in interactions with the industry as only a "minority of the Parties host tourism companies and/or provide port services" (Orheim, 2013, p. 297). Opposing views are represented by IAATO and ASOC. IAATO, the umbrella organisation of Antarctic tour operators, highlights tourism as a legal activity in the Antarctic region and their responsible codes of conduct in line with the Madrid Protocol. ASOC, the umbrella organisation of international environmental NGOs, on the other hand, urges tourism

to be regulated in order to reduce environmental impacts. While some argue that tourism is merely for the pleasure of the individual and thus higher environmental standards should apply to tourism than, for instance, to scientific activities, others argue that tourism is an effective medium to make the world aware of the sensitivity of Antarctica's environment and the importance of a responsible management of the place (Orheim, 2013).

There has been an attempt to develop a strategic vision for Antarctic tourism by the ATCPs. In 2009, the ATCM XXXII adopted Resolution 7, which outlined 'general principles of Antarctic tourism' (Lamers et al., 2012). These general principles state that all tourism activities should be in accordance with the ATS, have least possible impacts on the Antarctic environment, consider the primacy of scientific research in Antarctica, cooperate with each other and the ATPs to ensure best practice on environmental and safety management issues, and educate visitors about the Antarctic environment and its protection (Resolution 7, ATCM XXXII). The ATPs, on the other hand, should be proactive in further developing appropriate regulations (ibid.). Also, in terms of the ATS critique regarding the lack of contemporary adjustments to its legal system, Annex VI to the Madrid Protocol should be mentioned, which was adopted at ATCM XXVIII in 2005 (Bastmeijer & Van Hengel, 2009). Annex VI deals with the liability for environmental damage. However, to date the Annex has not been ratified by all ATCPs and, therefore, is not yet in force.

In summary, a number of issues are perceived as compromising the regime security of the ATS: the inequality among ATPs with a handful of ATPs dominating, a legal system that is not up to date to deal with new activities or developments of activities, as well as difficulties to enforce new regulatory mechanisms, such as liability provisions and compliance. The way in which ATPs will be dealing with each of these issues can be crucial not just for the future of the ATS but also Antarctica as a whole.

3.3.4. Maritime security

Liability is also of concern for maritime security. Due to a series of maritime accidents in Antarctic waters in recent years with tourism vessels involved, including a sinking of a ship in 2007, calls for "legal intervention and rigorous assessment, management, and monitoring" of Antarctic tourism became louder (Verbitsky, 2013b, p. 220). But ship-based tourism is not the only problem. Increased human activity in the Antarctic region, in general, has led to increased ship traffic in Antarctic waters, caused by not only tourism, but national Antarctic programmes (NAPs) and the fishing industry (Retamales & Rogan-Finnemore, 2011; Ruoppolo et al., 2013). Increased ship traffic increases the risk for maritime accidents with potential environmental damage, a logical consequence of this development (Chown et al., 2012; Jabour, 2012; Ruoppolo et al., 2013). Given the isolation, harsh climatic conditions and floating icebergs, there are serious environmental hazards for the navigation though Antarctic waters (Rothwell et al., 2012).

There have been recent accidents in Antarctic waters with ships operated by NAPs or the fishing industry (Orheim, 2013), but these usually incur less emphasis in the literature than the already mentioned incidents with tourism vessels. The demand for search and rescue (SAR) operations is a particular challenge for the five marine rescue coordination centres (RCCs) with responsibility for SAR in the Antarctic – namely Australia, Argentina, Chile, New Zealand, and South Africa (Retamales & Rogan-Finnemore, 2011). SAR has become a regular point for discussion on ATCM agendas. Figure 3.9 below shows the areas of responsibility for each RCC. The importance of the communication and coordination not just between RCCs but all operators in Antarctic waters – including NAPs, the fishing and tourism industry – are central in the discussions (ibid.). Some Parties, such as the United States, analysed opportunities for

improvement of co-operations among NAPs and other operators to increase logistical effectiveness (Augustine et al., 2012). Moreover, the IMO has recently adopted a mandatory code of safety for ships operating in polar waters (Polar Code), which addresses "design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters surrounding the two poles"[36].

Figure 3.9: Map developed by COMNAP: Maritime and Aeronautical Rescue Coordination Centres (RCCs) and Maritime Search and Rescue Region (SRR) Boundaries – source: Australian Antarctic Data Centre

3.3.5. Environmental, resource and human security

Environmental, resource and human security, despite being mentioned last here, refers to major contemporary security discourses on a global level that also involve Antarctica. Crucial for the security concept in this context are risks and hazards associated with climate change (Chaturvedi, 2012). What Chaturvedi calls "climate security" refers to a new dimension of security, one that is also highly controversial considering basic questions such as *Security for whom or what?* or *Security against whom or what?* (ibid.).

[36] cited from the IMO website: http://www.imo.org/MediaCentre/HotTopics/polar/Pages/default.aspx – accessed: 24/05/2014

In 2009, following the example of the 2004 Arctic Climate Impact Assessment (ACIA) report, SCAR first published a comprehensive report reviewing the state and current scientific understanding of Antarctica's climate, its role in the global climate system and the implication of changes within the system on Antarctica (Turner et al., 2009, 2013). An update to the Antarctic Climate Change and the Environment (ACCE) report followed in 2013 (Turner et al., 2013). The report highlighted the crucial role Antarctica plays in the earth system, but also Antarctica's sensitivity to global climatic changes (Turner et al., 2009).

Developments in West-Antarctica, the smaller part of the Antarctic continent including the Antarctic Peninsula, separated from East Antarctica by the Transantarctic Mountain Range, are alarming (Turner et al., 2009, 2013). In this region scientists observed significant warming with already visible impacts on the environment (Rodger, 2013). For example, in 2002, the Larsen B ice shelf broke up from the eastern side of the Antarctic Peninsula (De Angelis & Skvarca, 2003; Rack & Rott, 2004; Rodger, 2013). Recently, the West Antarctic Ice Sheet (WAIS) gained a lot of media attention related to latest research findings concerning its vulnerability and likely collapse in the future (e.g., Fears, 2014; Rignot, 2014; Sumner, 2014). The East Antarctic Ice Sheet, which seemed more stable in the past due to the effects of the Antarctic ozone hole – an effect that was predicted by the ACCE not to last (Turner et al., 2013) – is now also retreating according to recent satellite observations (McMillan et al., 2014). Scientists have vehemently emphasised that sea level rise will be a consequence of Antarctic ice sheet losses (Fretwell et al., 2013; Rignot et al., 2014; Shepherd et al., 2012; Wingham et al., 2006). However, future predictions necessarily include uncertainties (Kennicutt II, 2011). Potential consequences of sea level rise, on the other hand, are already discussed by the media as a serious threat to human well-being and habitats on a global scale (e.g., Goldenberg, 2014; Plumer, 2013).

Sea level rise is not the only threat associated with climate change implications on Antarctica. Scientists argue that climate change also challenges Antarctic terrestrial and marine biodiversity, (Constable et al., 2014; Convey et al., 2012; Convey, 2011; Gutt et al., 2011). As such, security may refer to the vulnerability of ecosystems against indirect or direct human impacts. Indirect human impacts are usually understood in terms of anthropogenic-induced carbon dioxide (CO_2) emissions as contribution to climate change that not just have an effect on the earth's atmosphere but also its oceans (Caldeira & Wickett, 2003; Orr et al., 2005; Zachos et al., 2008). Particularly challenging for marine ecosystems in the Southern Ocean are changes in sea ice concentration and ocean acidification (Kawaguchi et al., 2011; Rodger, 2013). Moreover, the introduction of invasive species has been noted as being among the "most significant conservation threats" (Chown et al., 2012, p. 4938). Warmer temperatures, more ice-free areas on land during the austral summer combined with more human activity in the Antarctic area, particularly the Antarctic Peninsula, create a high risk for the establishment of non-native vertebrates, invertebrates and plants (Chown et al., 2012; Hughes et al., 2014). Here, direct human impacts come to the fore. "All human activity in [the] Antarctic (...) causes localised environmental pollution and large-scale impacts" (Bargagli, 2005, p. 291).

Overexploitation of marine living resources may also pose a risk to Antarctica's biodiversity and ecosystem (Haward, 2012). Although CCAMLR was put in place to regulate and monitor rational use of marine living resources in the Antarctic area, including taking records of commercial fish catch, scholars warn that illegal, unreported and unregulated fishing in the region is a challenge not just for CCAMLR but also to the Antarctic marine ecosystem itself (Ainley et al., 2012; Aronson et al., 2011; Griffiths et al., 2011; Pinkerton et al., 2007). In this context, researchers have stressed the exploitation of the Patagonian and Antarctic toothfish as particularly critical (Ainley et al., 2012; Pinkerton et al., 2007). High market prices have made these fish an attractive prey, but because of "slow stock recovery times" toothfish populations are "particularly vulnerable to overfishing", the researchers argued (Ainley et al., 2012, p. 55).

Resource security is usually discussed in the context of human security. Human security is a relatively recent concept that gained popularity in the 1990s, particularly through the United Nations Development Programme (UNDP) (Foster, 2012). In 2012 Member States of the General Assembly agreed on a common understanding on human security[37] as

> "(a) The right of people to live in freedom and dignity, free from poverty and despair. All individuals, in particular vulnerable people, are entitled to freedom from fear and freedom from want, with an equal opportunity to enjoy all their rights and fully develop their human potential;
>
> (b) Human security calls for people-entered, comprehensive, context-specific and prevention-oriented responses that strengthen the protection and empowerment of all people and all communities (…)." (Resolution 66/290)

Yet, climate change is considered a severe challenge to human security (e.g., Scheffran et al., 2012; Stern, N., 2007; Turral et al., 2011). On a global scale, the process of climate change is held responsible for current extreme weather events such as droughts and floods, which are expected to become more frequent in the future (Beddington et al., 2012). This situation will likely reduce the accessibility and quality natural resources that essential to sustain livelihood, notably food and fresh water (Barnett & Adger, 2007). Foster notes an "awareness of the importance of the remaining internationally available supplies of resources is growing" (2012, p. 162). Competition for energy resources between states is already underway and has spread to the Arctic (Foster, 2012; Nicol & Heininen, 2013; Tow, 2007). Thus, Foster predicts:

> "In the coming century of resource scarcity the drive to ensure human security will lead to demands for access to all sources of food, energy, essential minerals and water for use around the world. Antarctica, like any other continent, may be considered by many to have a role to play." (2012, p. 154)

Chaturvedi (2012) argues Foster's predicted scenario clashes with fundamental principles of the ATS, under which Antarctica is understood as a "natural reserve devoted to peace and science" (Article 2, Madrid Protocol). It highlights the dilemma of securing either global human needs, or Antarctica's natural world and the ATS's integrity – to achieve one the other has to lose. Since both forces are pressured by the impacts of climate change, Chaturvedi terms this situation the Antarctic "climate security dilemma" (2012, p. 258). This dilemma is "unlikely to be resolved in the absence of a new philosophy and a holistic paradigm of Antarctic governance based on the norms of trusteeship and a radically different understanding of security and sovereignty" (2012, p. 259).

[37] The lengthy proceedings to find a common understanding of the nation of human security among United Nations Member States is described on the website of the United Nations Office for Coordination of Humanitarian Affairs (OCHA): http://unocha.org/humansecurity/about-human-security/human-security-un - accessed: 28/05/2014

3.4. Key structural elements of the ATS

The ATS is a human construct and is consequently very suitable to social theory investigation. Similar to other international institutions, adjustments to theories may be necessary in some cases due to the ATS's international composition. An important starting point, from a values perspective, is the fact that the ATS regime is a product of the prevailing ideas that moved global politics at the time the regime components were negotiated. As politics and societies keep changing, external events remain a key element influencing the ATS. In this context, concern expressed by some scholars regarding the robustness of the ATS is understandable, considering that most of the current challenges for the ATS that have been discussed in this chapter evolve outside the Antarctic and the ATS. Particularly those challenges related to human security mostly stem from changing environmental conditions either already affecting or potentially affecting human populations on all continents but Antarctica. Commercial interests are driven by lifestyles and international markets. Although motives for engagements in the Antarctic may vary, in general, interests are triggered by perceptions originating from and reasoning embedded in non-Antarctic social contexts. One is left to ponder the question: With regard to contemporary zeitgeist, what role is ascribed to Antarctica? For example, what does Antarctica mean in the context of climate change?

Actors are another important element to the ATS and key to the question just raised. Actors interacting within Antarctic institutions are primarily integrated in other institutions or networks of institutions outside the ATS. On these grounds, the ACF was applied by treating the ATS as a policy subsystem within a global policy system. In addition to the three different scopes of beliefs incorporated in the ACF, reaching from very general overarching principles to case-specific assessments, there are multiple further levels of value systems that need to be considered for Antarctic policy-making processes (see Figure 3.10). As discussed in Chapter 1, values can be found at both the individual and the collective level. A collective, in turn, can be anything from local to an international community. Therefore, value systems of a collective can occur on various levels. The issue of closeness between levels of value systems was briefly mentioned in Chapter 1. Schwartz explains high variety of value orientations among individuals within a society by pointing to people's individual contacts and experiences with collective value levels. His theory is that closer related value levels have more influence on the individual than more distant value levels, such as a value culture. But does the ATS have a value culture?

Joyner (1998) speaks of a "legal culture of the ATS", which "stems from the patterns of involvement by member governments" (p. 94) and includes not just the legal bondage to the agreements, but also specific roles and expectations of governments. A value culture, in the sense Schwartz uses the term, is something different. Schwartz's value culture is an organic value system with its own dynamic detached but not completely independent from individuals. One criticism that was mentioned in this chapter was the loss of the ATS's progressiveness in dealing with emerging issues. This criticism implies that the ATS is not an organic system that develops but requires actors' interventions to keep orientations and priorities updated. Like a constitution, the values manifested in the ATS regime, giving guidelines and conditions for actions to ATS institutions, are negotiated and agreed upon governing goals. Agreeing to the committed values manifested in the ATS regime is a requirement for parties to become a member of the ATS. Consequently, a party's value system may be compromised to a certain extent depending on the costs and benefits the party sees from an ATS membership. In addition, actors participating in Antarctic policy-making are likely more directly exposed to prevailing value orientations of their 'home' organisations than to the ATS regime. As demonstrated in Figure 3.10, this circumstance creates a distance between individual actors and the ATS regime, which makes consensus within ATS institutions difficult. Given the multi-layered system of different value and belief systems involved in Antarctic policy (Figure 3.10),

there is potential for conflicts not just between actors but also between values across the different levels of value systems. Whether and where conflicts occur will depend on the specific case and context. As such, the question of value conflicts in Antarctic policy-making is to be further explored in the following case studies.

Figure 3.10: Different strata of value systems involved in Antarctic policy-making

The governance of the Antarctic commons through the ATS includes some of the principles for robust governance suggested by Dietz et al. (2003), but not all of them. On the positive side are the integration of stakeholders into the policy-making process and comprehensive conservation regulations. There are weaknesses concerning the monitoring of activities in and around Antarctica in terms of compliance with ATS rules and the sanctioning in case of violations. Another problem is that only ATS member states are legally committed to ATS regulations, but not non-members. For some issues this gap can be closed by means of international law. More recently, the capability of the ATS to adapt to current and future challenges has been questioned by scholars. "Plan for institutional adaption and change" is one of the principles Stern suggests for global resource commons, which includes an "interactive risk management" (2011, p. 224). This principle requires institutions to continuously learn from their operations, ideally by incorporating science and, where necessary, update their structures and processes (ibid.). The learning aspect has been mentioned several times in the previous chapters as important for both value and policy change. Another question to address in the case studies that follow in the next chapters will be whether there are any learning processes detectable in Antarctic policy that hint to changes occurring.

Beside external factors and actors, action situations – with reference to the IAD framework – is a further key element in policy-making within the ATS. ATS institutions create action situations with various political actors interacting. Interaction occurs primarily in the form of political debates. These debates are informed by a diversity of experts and interest groups, which usually include advisory committees established by the ATS as well as independent organisations with expertise in Antarctic science, operations, conservation and commercial activities such as tourism and fishing. ATCMs are the most important action situations for ATS policy-making since final decisions are officially been made here. Among actors participating in an ATCM, only the ATCPs have decision-making powers, and decisions are required to be made in consensus. Therefore, in order to have a greater impact on decisions, coalitions

between actors represent another important element in ATS policy-making. According to the ACF, beliefs are the main drivers of policy-making, which includes the formation of coalitions. Following the ACF rational, debates in the action situation should be also driven by the beliefs of different actors or coalitions, using different (argumentative) strategies to influence decisions. With reference to Rokeach (Chapter 1) or the VBN theory (Chapter 2), values are inherent in beliefs and, according to Kluckhohn (Chapter 1), observable through patterns in behaviour, including verbal behaviour.

Taking into account such elements of the ACF and value theories, from a values perspective, the part that is most important in the action situation, as presented in the IAD framework, are deliberations about the cost and benefits of potential outcomes. In the ATCM action situation, this is where negotiations about which actions to take occur, and actors can exchange their views. It is where beliefs and underlying values come into play and, in the exchange of views, where coalitions may form to influence decisions that result from the negotiations. On this basis, the IAD model of the internal structure of an action situation can be modified by integrating the sphere of beliefs, on which discussions are based, coalitions are formed and which influences decisions as the outcome of the ATCM action situation (Figure 3.11).

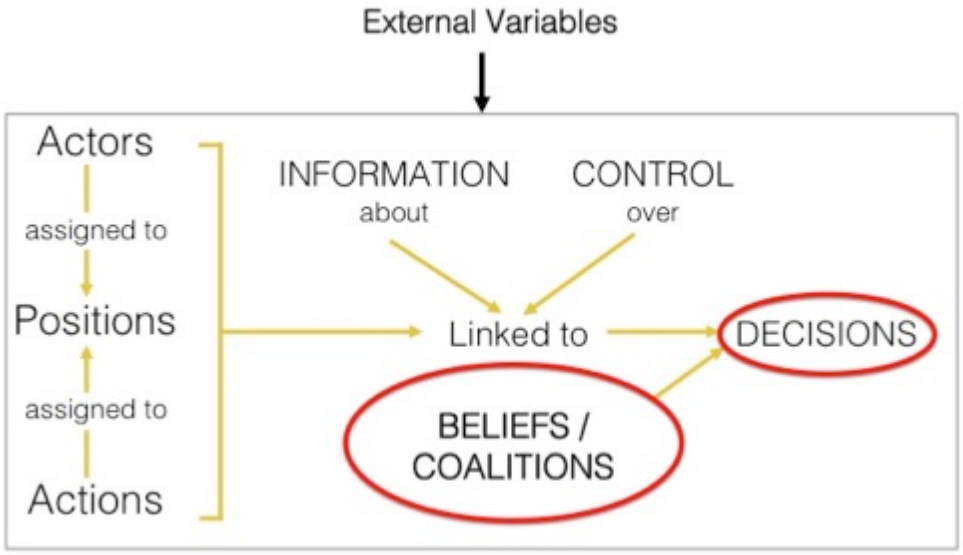

Figure 3.11: Modified theoretical model of the IAD action situation for the analysis of ATCM action situations

The preliminary theoretical model is shown in Figure 3.11. Refinement of Figure 3.11 is carried out in alignment with discussions on the methodological approach for the empirical investigation in the next chapter.

4. Method

The research presented thus far in this thesis is theoretical and conceptual in character, but this is just one part of it. The other key part draws on document analyses to complete the investigation with concrete Antarctic case studies, which will follow in the next chapters. While the previous chapters established the theoretical and contextual foundation for the empirical research to come, this chapter's task is to provide the method and technical means to combine the theory with the empirical investigation. It will be argued that qualitative, political discourse analysis is particularly sensitive to the complexities of value and belief systems underlying policy processes and as such, is applicable to the ATS.

4.1. Research questions

In Chapter 3, various questions and aspects have been raised for further examination. One question was: *What role is ascribed to Antarctica concerning contemporary issues?* The most basic requirement for a human being to value Antarctica is being aware of Antarctica's existence. Cognition is mentioned by several theorists introduced in Chapter 1 as a key element to values. Beyond the mere awareness of the existence of a place called Antarctica, one needs to have specific ideas of Antarctica in order to make judgements about or generate feelings for Antarctica (Brentano, 1968). Ideas of Antarctica do not necessarily require personal experience in terms of actual contact with the Antarctic continent, but can be learned anywhere from distributed knowledge (through either oral lore or media and technology) and visualisation (using available pictures or human imagination). Delving into Antarctica's role in contemporary issues adds the context in which ideas of Antarctica are situated, and perhaps further developed. The notion of *zeitgeist*, used in the previous chapter, refers to the fact that there are patterns of dominant concepts and ways of thinking, moving world politics at particular periods in time. With this in mind, the question of Antarctica's role in contemporary issues (such as climate change) is to be considered in terms of a particular mindset that underlies current discussions within ATS institutions.

Based on the findings in the preceding literature review and ATS framework analysis, it would be unwise to assume homogenous attitudes among Antarctic policy-makers. Because of the diversity of ATPs and other stakeholders participating in Antarctic policy, actors enter the political stage with not only different interests and experiences, but with unequal resources and political powers. In addition, there are different cultural backgrounds and histories, national political and legal systems, national economies, national political and social issues, languages, etc. Further, individual actors bring in institutional value systems as well as their personal value systems when they interact with other political actors in ATS institutions. There is potential for conflicts between values across different value systems within ATS institutions (see Chapter 3, Figure 3.10). Value conflicts may also occur in the form of a dilemma. In Chapter 1, a dilemma was defined as a situation, in which a choice has to be made between two equally important values. Decision-making in dilemma situations is difficult, but particularly when consensus decision-making is required, as is the case for the ATS. Value conflicts in Antarctic policy-making represent one aspect of the empirical investigation that focuses on answering the following question: *Where and why do conflicts arise in the ATS policy-making processes that are based on conflicting values?* With this question, the consideration of value bearers (i.e., Who are the actors involved in the discourse where value conflicts arise?) will be crucial.

Beside cognition and conflicts, change is the third main aspect for the empirical investigation. Bearing in mind the central role values play in human behaviour, changes in value systems

must have considerable impact on human behaviour including decisions. Changes may be also caused by external factors creating changing circumstances for policies. In this sense, a third research question to address in the case studies is: *What changes in the underlying belief-systems are driving policy-making processes and what has caused the change?* (e.g., Are there any changes in the reasoning for political decisions, and what has changed? Are there any lessons learned or new knowledge that might have caused these changes? What is the impact of external events on policy change?) With regard to the challenges the ATS is currently facing (Chapter 3), the two case studies will consider, if applicable, responses by Antarctic policy-makers to those challenges.

4.2. Qualitative research approach

Any study that deals with the often complex and latent processes of political negotiations, such as those inherent in the business of the ATS, requires a sensitive and defensible method. The objective of the empirical investigation was to reveal the underlying values and conceptions shaping Antarctic policy. As such, the investigation sought for a better understanding of Antarctic policy-making as a socio-psychological phenomenon and the role of values in policy processes. Qualitative research methods have the advantage. These methods grasp the full complexities of arguments, understandings and interactions as they are not limited by predetermined standards, therefore, allow a better insight in belief and value systems (Wynne, 1991). Given the nature of the research questions, a qualitative research approach was chosen over a quantitative research approach.

4.2.1. Political discourse analysis

The term 'discourse' has been already used in various contexts in the previous chapters, but so far without any further explanation. Discourse is central for the empirical investigation. Like most of the concepts presented and discussed in the present thesis hitherto, discourse is another highly complex concept. Hajer (1995, 2009, 2011) defines discourse as

> "an ensemble of ideas, notions and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices" (Hajer, 2011, p. 83).

Discourse goes beyond the mere discussion around a given issue, it does something that influences cognition (Hajer, 2006a). Although there is no direct reference to values, values are at least indirectly included in Hajer's definition of discourse through beliefs that are inherent in the conceptualisation of a particular phenomenon. Further, filling a phenomenon with specific meaning requires judgements, which are based on values. Another hint to values is in the second part of the definition, which refers to the fact that the conceptualisation of phenomena takes place in context of certain practices – that is rules and norms in use that are mutually understood.[38] Based on the discussions in the previous chapters, cultural practices and norms are also related to values.

Hajer (1995) uses discourse as a method to analyse policy processes. Here, he focuses on how a problem is defined in the process of discursive interaction among a diversity of actors, who attempt to influence the definition (Hajer & Versteeg, 2005; Hajer, 2006a). As such, meanings of political problems are social constructions. The meaning of climate change as a political

[38] Hajer outlines all terms including definitions he uses for his method of discourse analysis on his website: http://www.maartenhajer.nl/?page_id=14 (accessed: 21/07/2014)

problem, for example, is a product of the 'ideas, notions and categories' that result from the interactions between politics and science (Hajer, 2011).[39] Given the diversity of actors involved in the political discourse of climate change, the question Hajer (1995) raises is how, when and why a particular understanding of the problem becomes dominant against alternative understandings? The analytical approach, he suggests, combines elements of both the IAD framework and the ACF. Hajer proposes a method for political discourse analysis that focuses on structures in argumentation, which can be found in either written or spoken form (2006a). Central in the discourse is the story line, which links two different discourses in a very short narrative. Based on story lines, Hajer introduces the concept of discourse-coalition. A discourse coalition is formed by a group of actors, who, for a period of time, share the same course of argumentation based on a same set of story lines.[40] Language is crucial in this concept of political discourse as it presents "system of signification" (2006b, p. 46). Examples of language used in the ATS context are notions manifested in the ATS regime such as the *intrinsic value* of Antarctica in connection with *wilderness* and *aesthetic value*, or the *rational use* of Antarctic resources (Chapter 3). These terms are not neutral but associated with certain questions and positions in environmental ethics (Chapter 2).

There are conceptual similarities between Hajer's methodology and the ACF in terms of causal beliefs as a basis for coalitions that shape policy-making processes. In fact, Hajer refers to Sabatier and the concept of Advocacy Coalitions with regard to the analysis of policy change (Hajer, 1995). Changes in policy-making processes can also be analysed through discourse. By focussing on argumentative structures and patterns in the use of language, a political discourse analysis may detect the emergence of "new cognitions and new positionings" (Hajer, 1995, p. 59). Hajer's policy analysis also considers the institutional framework in which the discursive interaction is placed. Without explicitly referring to it, Hajer's method does apply elements of the IAD framework. Hajer suggests approaching policy-making processes as "sequence of staged performances" (2006b, p. 41) based on particular dramaturgies of interactions. Therefore, similar to the IAD, interactions between actors are predetermined by various factors. The organisation of an interaction includes everything from the physical situation over the determination of authorised actors involved and their roles, to the information provided and the specific modes of operation (Hajer, 2006b). All these factors influence also the discourse. By combining elements of the ACF and IAD using the concept of discourse, policy-making processes can be analysed in terms of both argumentative structures and dynamics (including change) in political discussions that are producing and reproducing meanings and understandings of policy issues.

Hajer applied his political discourse analysis to environmental issues (Hajer, 1995) as well as supranational institutions such as the European Union (Hajer, 2006b). Therefore, political discourse analysis has proven its capability to deal with high diversity of political actors including governments and in the context of environmental policy, two major characteristics of the ATS. However, although values are inherent in the discourse concept, Hajer's discourse approach does not focus on values specifically. A political discourse approach with a value focus is presented by Fairclough and Fairclough (2011, 2012).

These two linguists base their understanding of discourse on Critical Discourse Analysis (CDA), which considers discourse as a type of social practice. Very similar to Hajer, CDA sees discourse as interactions between the discursive event or situation, institutions and social structures. Discourse is socially produced through these relationships while concurrently

[39] Particularly Hulme (2009) advocated the idea that climate change mutated from a solely physical phenomenon to a hybrid phenomenon (physical and social) that is mutually constructed by science and society (Hulme, 2010). Beside changes in weather patterns over long time periods, climate change is also an idea discussed in context of multiple facets of social life including politics, economics, popular culture, commerce and religion (Hulme, 2009).
[40] See definition 'discourse coalition': http://www.maartenhajer.nl/?page_id=14 (accessed: 21/07/2014)

transforming the relationships (Fairclough, N. & Wodak, 1997). Fairclough and Faiclough (2011) suggest an analysis of political discourse that focuses on a critical evaluation of argumentation. They argue that for any democratic political system, deliberation is fundamental (Fairclough, I. & Fairclough, 2012). Politics tries finding solutions for given problems while making decisions about what further actions are to be taken. Both refer to deliberation (Fairclough, I. & Fairclough, 2011). In this sense, deliberation is an "argumentative genre" (Fairclough, I. & Fairclough, 2012, p. 50), for which practical reasoning is the most common form of reasoning. Practical reasoning, in the simplest sense, is "means-end reasoning" (Audi, 2006, p. 81) with values playing a central role (Rescher, 1966). Audi (2006) explains practical reasoning through its inherent cognitive-motivational structure, presenting a basic schema consisting of the following elements:

> "Major Premise – the motivational premise: I want φ;
> Minor Premise – the cognitive (instrumental) premise: My *A*-ing would contribute to realizing φ;
> Conclusion – the practical judgement: I should *A*." (p. 96)

This structure reminds one of Stern et al.'s VBN theory (Chapter 2), where values are motivational drivers with beliefs mediating between values and actions while considering consequences and responsibilities, and activating norms for taking action. However, like Hajer, Fairclough and Fairclough (2011, 2012) emphasise the importance of argumentation for political discourse. Claiming arguments are a key analytical category for political discourse analysis, Fairclough and Fairclough advocate the concept of practical argumentation. Practical arguments consider a number of variables including the specific situation, goals, possibilities, benefits and moral considerations that are balanced against each other in order to identify and justify the right course of action (Fairclough, I. & Fairclough, 2011). In this sense, Fairclough and Fairclough (2012) compare argumentation to strategies. In a political discourse, where diverse actors find themselves in a situation in which they have to negotiate collective actions under given circumstances, it is likely that a number of alternative argumentations will be suggested. This leads back again to political deliberation. At this point, however, deliberation involves not just finding a solution for the problem at hand but a balancing act between various practical argumentations.

Figure 4.1 describes an argument and counter-argument including the underlying reasoning. Values are a starting point, but the context is fundamental for the deliberation. This basic structure may also apply to coalitions of political actors within a policy subsystem (with reference to the ACF). In a coalition, political actors jointly employ a specific strategy to argue for, or against, particular actions based on their beliefs. If there is opposition, the opposed political actors will do the same. With respect to the discourse, such strategies form the basis for Hajer's discourse coalitions.

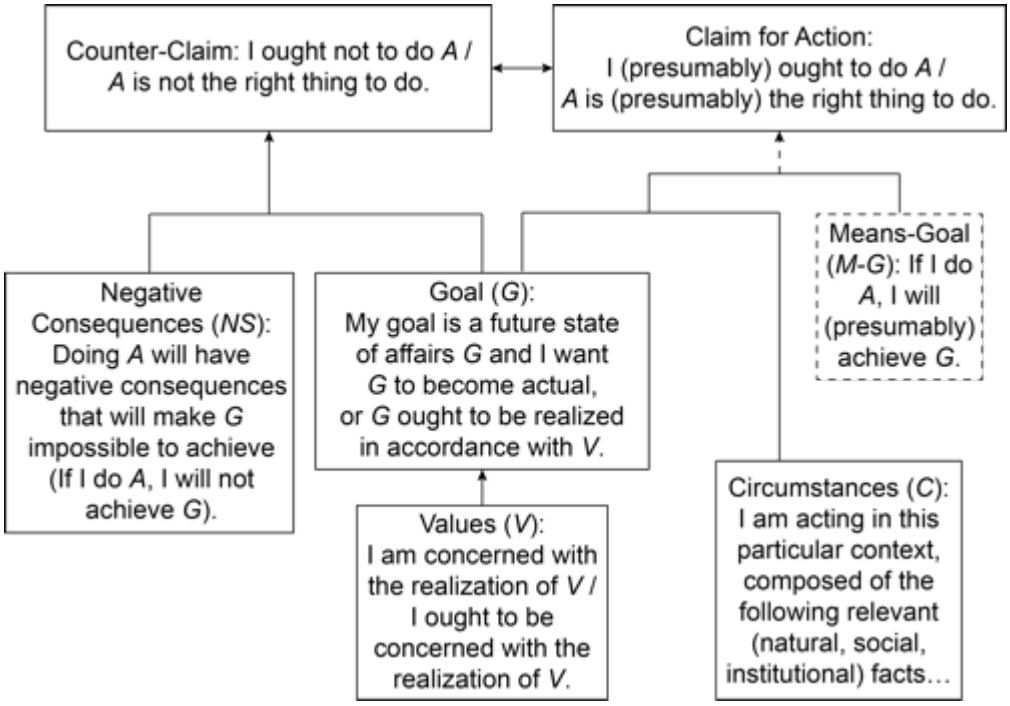

Figure 4.1: Schematic representation of an argument and counter-argument deliberation in political discourse (Fairclough & Fairclough (2012), p. 51)

Political discourse analysis features substantial parallels with theoretical frameworks such as the ACF, IAD as well as the VBN theory. Therefore, the concept of discourse presents an ideal basis for the merging of elements borrowed from the ACF, IAD and VBN theory in method that is capable of analysing the complexity of values and human behaviour in the context of Antarctic policy.

4.2.2. Case studies

Within the ATS context, ATMEs seem especially useful as value case studies in terms of the ATS conditions to convene an ATME and the thematic scope of an ATME. The legal basis for ATMEs is Recommendation IV-24, which was enacted at the ATCM IV in Santiago, Chile in 1966. Recommendation IV-24 provides that

> "Meetings of experts be convened from time to time as the need arises to discuss practical problems relating to Antarctic activities. Such meetings would be attended by experts from Consultative Parties. With the agreement of all the Consultative Parties, other experts may be invited to attend. They may submit documents and make statements, but they may not vote."

ATMEs are only convened when ATCPs feel the need to hold a special meeting on a well-defined topic area, which attests to a certain importance and priority of the matter at stake. The "Handbook of the Antarctic Treaty System" (2002) further states that an ATME should address a "matter of common concern" (p. 122). To be of common concern, the importance of the issue will have to be generally understood by all parties. ATMEs, unlike ATCMs, concentrate only on one specific problem. The problem may be associated with a number of other problems, depending on the complexity of the matter, but the ATME remains a meeting with a clear focus on one overarching topic. Because of the limited subjects for discussions, the discourse within the scope of the ATME can and is supposed to go into more detail. ATMEs also have a

specific mission, namely to advise the ATCM where decisions are ultimately made. Within the ATME, participating experts are not authorised to make any decisions or advise their own governments. Recommendation IV-24, however, requires a full meeting report of the ATME to be presented at the subsequent ATCM. The final report to an ATME usually includes a number of Recommendations, which experts have agreed upon, and which are meant to provide solutions for the existing problem. Finding agreements on how to best deal with a given problem is central to the discourse of an ATME.

The two most recent ATMEs were selected as case studies for the empirical investigation. The ATME on the Management of Ship-borne Tourism in the Antarctic Treaty Area, hosted by New Zealand, was held in Wellington on 9-11 December 2009. Norway hosted the ATME on the Implications of Climate Change for Antarctic Management and Governance in Svolvær on 7-9 April 2010. These ATMEs had some similarities – both were held between the ATCM XXXII in April 2009 and ATCM XXXIII in May 2010, and both contain a key event that seemed to have influenced the decision to convene the relevant ATME. The M/V Explorer incident in 2007, which saw the first tourist vessel sinking in Antarctic waters, stimulated the ATME on ship-borne tourism. The release of SCAR's ACCE report motivated the ATME on climate change. These events had already impacted the broader discourse at ATCMs to an extent that the need was felt for in-depth studies of the two issues. In the discourse of each ATME, participating actors are mainly concerned with the assessment of the meaning of either event in terms of resulting consequences and responsibilities for Antarctic governance. In the case studies in this thesis, assessments, which include value judgements and preferences by the experts, are analysed based on the documents.

4.3. Theoretical model

Discourse offers the conceptual basis to link not just ACF and IAD framework elements for policy analysis, but also VBN elements of pro-environmental behaviour. Therefore, the preliminary theoretical model started in Chapter 3 (Figure 3.11) can now be further developed as a model suitable for a value-based discourse analysis of the two ATMEs on ship-borne tourism and climate change. Similar to an ATCM, an ATME is also an action situation, involving a set of identifiable actors (i.e. the experts) who are brought together to interact in a specific setting for a particular purpose. Consequently, the IAD framework remains as the basis of the theoretical model. The purpose of an ATME is to discuss a common issue related to the governance of Antarctica, negotiate solutions for associated problems and finally agree on recommendations to present to the ATCM. These deliberations, which are documented in meeting documents and the final report by the meeting's chairs, are the discourses of these ATMEs. At this point, both the ACF and VBN come into play. Theoretically, elements of the ACF and VBN can explain what occurs at ATMEs: the discourse is driven by the actors' values and beliefs, on which grounds some actors may form coalitions in using jointly particular argumentative strategies.

With the IAD model of an action situation as a basis, the theoretical model of the ATME discourse focuses on two basic aspects: (a) the motivational and cognitive structure of participating actors, and (b) the specifics of the situation. Value and belief systems of actors are constrained by the position each actor is assigned to in the action situation. Therefore, the identification of the role each actor has as they enter the political stage of the ATME can provide crucial information and insight into the discourse. Actors in an ATME may vary in how familiar they are with the meeting's structure (information about the action situation). More ATS-experienced experts possibly have an advantage over experts who are new to the

formal and informal institution[41] of an ATME. This is true for experts sent by ATCPs as well as experts representing any other invited party. Actors may also vary in terms of their freedom in sharing information, making statements and decisions (control over choice). Experts appointed by national governments may be more restricted or less flexible in their practical argumentation than experts from NGOs.

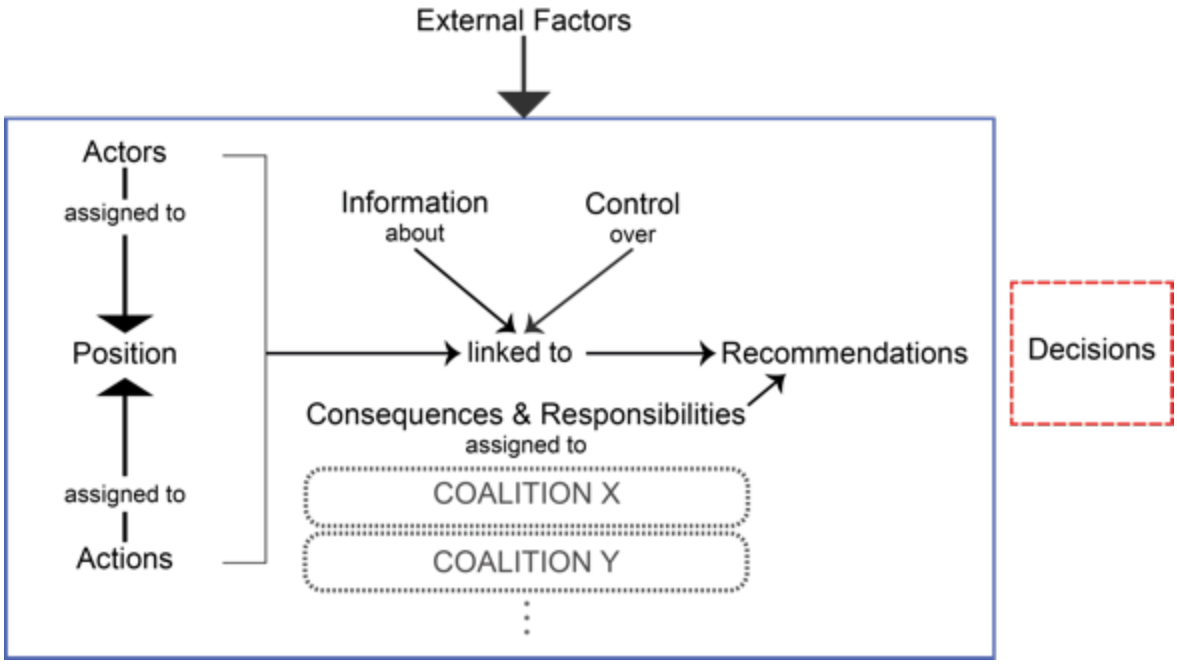

Figure 4.2: Modified theoretical model based on the IAD 'action situation'

Actions within the ATME can be summarised as deliberation. Based on the meeting documents and final report, actors' practical argumentations are analysed in terms of what consequences they deduce from the information available and what responsibilities they assign as a result. Inherent in such argumentation is the contextualisation of the issue, which gives the issue a specific meaning. Thus, issue profiling is another part of the analysis crucial to answering the first research question (*What role is ascribed to Antarctica concerning contemporary issues?*). The wording used in the documents may give us clues about actors' value judgements and priorities. 'Desire,' for example, is a strong word with value affinity (see Chapter 1). Stressing the 'importance' of something or any superlative used underlining implicitly the importance of something is another indicator for underlying values. 'Highlighting' or 'emphasising' indicates that something is given higher priority than something else that was 'noted.' Parties 'agreeing' is also an important key word, as the ATS is based on consensus decision-making. Otherwise, if an agreement is not mentioned and instead comments of various actors summarised, this can be a hint for a conflict. All these terms are typical terms of the specific jargon commonly used in final reports of ATS meetings of any kind.

Identifying the structure of practical argumentations, including consequences and responsibilities, reveals actors' means-end thinking and if there are any conflicting values along the line. Values had been defined as *internalised codes that affect behaviour and include judgements on what is good and desirable*. Therefore, for the identification of values and structures in practical argumentations regarding judgments about certain objects, situations or

[41] Formal institutions are official rules and procedures, while informal institutions refer to so-called unwritten rules that developed through social interaction over time (Helmke & Levitsky, 2004).

activities are of utmost importance. Key words, as the ones pointed out above, express value judgments or conflicts.

In the ATME discourse, groups of actors may also use the same or a similar argumentative strategy. Such joint strategies hint to coalitions between actors. Coalitions are most obvious where meeting documents are authored jointly by several actors. Regarding the second research question (*Where and why do conflicts arise in the ATS policy-making process that are based on conflicting values?*), special attention is given to conflicts in the discourse. Indicators for conflicts are differences. Different actors may have different value and belief systems, use different arguments and might even have different ideas about the issue itself. A dilemma is also a (value) conflict. In any case, compromise is likely to be inevitable. Compromise between contradicting arguments, however, will not be possible. Recommendations in the final report reflect agreements that could be reached in the meeting's discussion; however, ultimate decisions are made by those experts with an ATCP background. If a compromise is not achievable, they will have to give preference to a particular argument.

There are also external factors to consider, as they might influence both the deliberation and the recommendations to the ATCM. The IAD framework considers three external variables that have an impact on action situations: biophysical conditions, attributes of community and rules-in-use. Chapter 3 included a brief introduction to Antarctica as a place. The extreme and unusual conditions that are characteristic for Antarctica must be considered in any deliberation about the management of this place. In this sense, actors may judge an issue in Antarctica differently than they would in other contexts – but such a comparison lies outside the scope of the present investigation. Yet, in both ATME discourses, but particular in the case of the climate change, the biophysical condition of Antarctica is crucial and core of the discourse itself.

As mentioned above, actors in the ATME come with different backgrounds and resources. Attributes of the ATME community refer to the communities that the actors are affiliated with rather than the ATS as a community in itself. Attributes of the community, then, can be special characteristics and interests of the organisation or government the actor is affiliated with and has to represent. As such, influences of communities' attributes will almost certainly be a factor in shaping the ATME discourse. Therefore, the analyses must take affiliations of actors into account. Finally, ATME discourses are tied to the ATS regime and must apply deliberations to the principles and rules set there. The consciousness of actors of such overarching principles, and if they introduce ATS principles into the ATME discourse, will further demonstrate the proximity between the ATME value and belief system and the ATS regime.

4.4. Sources

As mentioned in Chapter 3, the Secretariat of the Antarctic Treaty maintains an extensive and open-access online database (http://www.ats.aq). This database includes all reports and corresponding documents submitted to ATCMs since their very first meeting in 1961. The same applies to SATCMs, ATMEs, and the CEP meetings. Papers submitted to any of these meetings, which may be authored by a single or a coalition of multiple parties, provide indications of existing problems at a certain time, or bear witness to arguments for or against an issue at stake. Final meeting reports, in turn, give summaries of the discussions and decisions made during the meetings. All these documents illustrate discourse in written form and present a rich source for a political discourse analysis of Antarctic affairs.

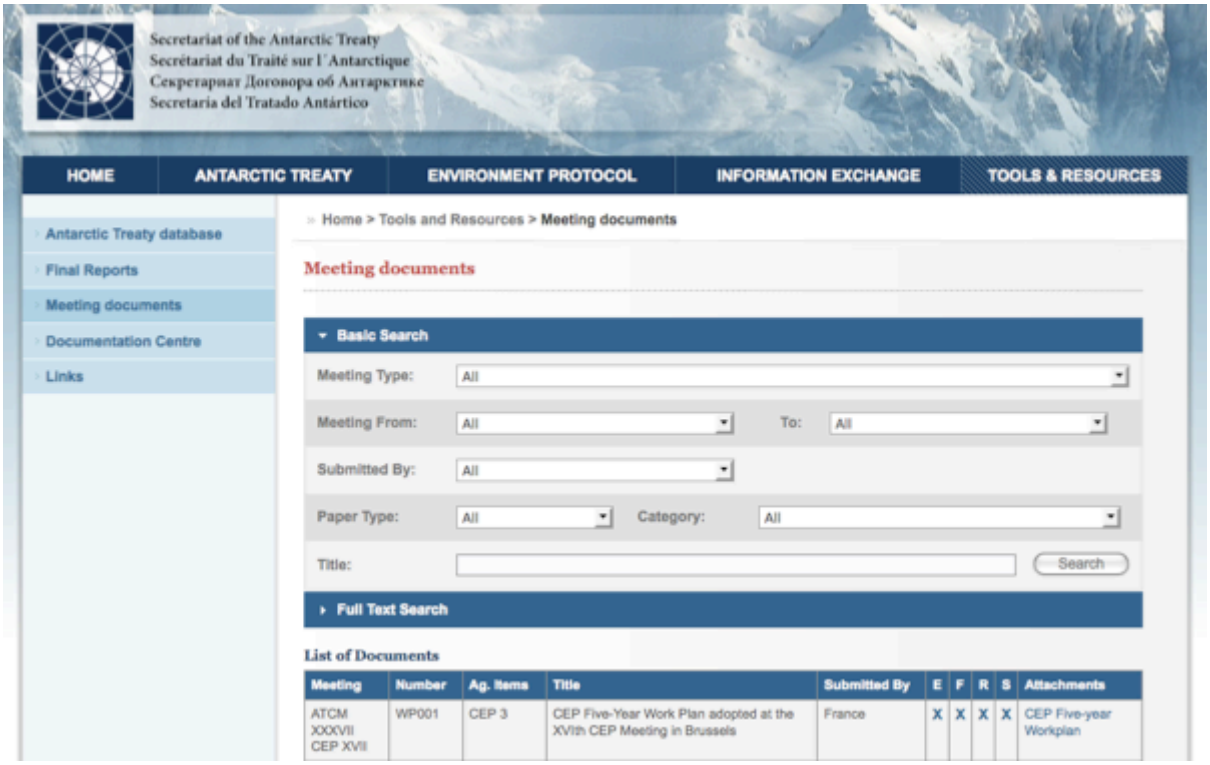

Figure 4.3: Search tool for meeting's documents on the Secretariat's website (http://www.ats.aq/devAS/ats_meetings_doc_database.aspx?lang=e&menu=5 – accessed: 18/09/2014)

Due to the great number of documents available, it is necessary to make a selection of documents suitable for scrutiny. The Secretariat provides a useful search tool that enables targeted searches for meeting documents (Figure 4.2), including search queries for particular meetings, specific parties submitting the documents, specific document titles and types (i.e., WP, IP, etc.), and topical categories. These topical categories are in accordance with general classifications set by the ATCPs. The Antarctic Treaty database further allows searching for regulatory measures (i.e., Recommendation, Measures, Decisions or Resolutions) adopted by ATCMs. Information linked to search results includes the text, attachments (if applicable) as well as information on the legal status of the measure. Final reports of all types of meetings are listed separately under the menu item "Final Reports". Both meeting documents and final reports are available for free downloads either as Word document or pdf file. Downloads allow a further analysis of the documents using Microsoft Office or Adobe software tools including text search, highlighting, comments, and comparisons.

4.5. List of Documents

Central for the discourse analysis of the each case study are meeting documents submitted to either the 2009 ship-borne tourism ATME or the 2010 climate change ATME as well as the corresponding final reports. Additional documents relevant to the discourses and, therefore, included in the analysis are identified in the process of the analysis.

(For a complete list of documents see Appendix I)

4.6. Scope of investigation

ATMEs only give a snapshot of the overall discourses on the management of Antarctic ship-borne tourism and climate change implications. With respect to the third research question,

which addresses the aspect of change (*What changes in the underlying belief-systems are driving policy-making processes and what has caused the change?*), results of the ATME discourse analyses will have to be compared with the discourses on ship-borne tourism and climate change at ATCMs before and after the two ATMEs. Here again, the database of the Secretariat provides an important source of information on ATCM meetings, which is used in this thesis. The search tool allows searching for topic-related meeting documents and measures. Given the volume of documents, however, documents will only be included in the analysis when they appear relevant after a preliminary scan through the documents. Also, if there is evidence for particular ATS-external documents having influenced the discourses on ship-borne tourism or climate change within the ATS in a significant way, these external documents should be considered in the analyses. The climate change discourse is of global scope and polar tourism is an issue that also concerns the Arctic. Therefore, documents of other international organisations and bodies may provide important information about the broader discourses on ship-borne tourism and climate change.

4.7. Analysis

In respect to Hajer's discourse analysis, 'dramaturgies of interactions' in the policy-making process were mentioned above. The dramaturgy of the policy-making process considers aspects such as the determination of participating actors and their roles, the physical location, the deliberate organisation of the interaction and performances during the action (Hajer, 2006b). An ATME is also not a spontaneous but a planned action situation. Therefore, the analysis of each case study will include both the discourse of the ATMEs and the planning or organisation around it.

4.7.1. ATCM Decision and background information

The analysis of the ATCM Decision is fairly straightforward as the Decision usually gives a clear statement of what the ATCM expects of the ATME. The focus of the analysis is information regarding topics that address eligible actors and, if provided, place and time of the ATME. Based on the topics set in the Decision, further background information on related previous or ongoing discourses either inside the ATS (e.g., ATCM reports and meeting documents, ATCM measures) or on a global level (e.g., UN or associated agencies) will be researched and included. Relevant background information is material such as the ATCM meeting document in which the ATME was originally proposed, the author of the documents and the reasoning and justification of the proposal. Based on hints to events, discussions or decision that have led to the need of an ATME, it is necessary to delve deeper and identify relevant documents, which will be analysed in terms of issues statements and arguments, decisions and other measures.

4.7.2. Setting and staging of the ATME

For the setting and staging of the ATME, a very useful source is the ATME report. The report should give information on where and when the ATME was actually held as well as the final agenda – including topics for discussion – adopted at the ATME. Compared against the ATCM Decision, it can be determined whether the ATME has made any changes. If there are changes to the conditions of the ATCM Decision, the ATME report will be examined for reasons provided as to why the ATME undertook changes. Topics included in the agenda require further investigation. ATME topics indicate the emphasis on specific characteristics of the

issue at stake and influence the ATME discourse substantially. Background information will be considered to infer the context of ATME topics. Also, with respect of the ATME host, any obvious connections between the host and the ATME topics are used to examine: *Why is the ATME held in this particular country/city?*

The distribution of official roles is another aspect that deserves further consideration. Information about the election of the ATME chair(s) and other positions should be available in the ATME report. Once identified who was appointed to official roles, it is further to identify what other roles these individuals hold apart from the ATME and if there are any patterns among the ATME's chair(s), co-chair(s), etc. backgrounds. Also important for the staging of the ATME are opening addresses or keynote presentations as they are supposed to set the scene for the ATME and may influence the following ATME discourse. The content of opening addresses or keynote presentations should be provided in the ATME report or made available through the ATME organisers in some other way. Opening addresses or keynote presentations are considered in terms of the speaker and in what role he or she addresses his or her speech to the ATME, the main messages that are sent out, and what references are made. Moreover, if there is any preparatory material provided by the ATME host and organiser, these documents will be also included in the analysis as staging efforts.

4.7.3. ATME actors

The ATME report should include a list of individual experts who attended the ATME. ATME attendee lists usually consider ATP states and invited expert organisations, under which each delegation is listed. Comparing the ATME attendee lists against the ATME Decision, will reveal whom of the ATCPs and invited experts actually attended.[42] Also, comparing the sizes of each delegation on the ATME attendee list will show what group of actors are over-presented and may dominate the discourse. The distinction between ATCPs and all other experts is important, as there are differences in competences with only ATCPs being authorised to make decisions. Therefore, ATCPs are compared with each other, separately from the other expert organisations.

Beside the size of their delegation, affiliations of ATCP delegates are relevant, which should be also included in the ATME attendee lists. In comparing affiliations of ATCP delegates, a major focus will be on identifying patterns that characterise ATCP actors. Any other information provided in the ATME attendee lists will be considered and integrated in the comparison of actors. Useful information of the ATME attendee lists with regard to actors representing other expert organisations are associated countries and positions (if provided). Further general information about the character of each of the represented organisations will have to be found through other online sources. Finally, the active participation of all actor groups (i.e. ATCPs and expert organisations) will be measured at meeting documents submitted to the ATME and compared. Scanning through submitted meeting documents will give an overview of with what kind of documents (e.g., own representation of the matter, scientific paper, report, legal documents, etc.) actors contribute to the ATME.

4.7.4. ATME discourse

For a general overview of meeting documents submitted to the ATMEs, all documents of the relevant ATME will be searched via the Antarctic Treaty Secretariat's database. Search result will provide a list of submitted documents with further information on the author(s) of each

[42] Invitations to an ATME do not constitute any obligation. Invited parties decide whether or not to send experts to the meeting.

document and what agenda items (topics) the document addresses. In comparison it can be determined how often each topic is addressed, which provides a first impression of priorities among ATME topic. Adequate statements on differences in emphasis between ATME topics need to be based on the analysis of the contents of each ATME meeting document and the final report. ATME meeting documents are examined in terms of how an issue is presented, which includes descriptions of the issue, adverse consequences associated with the issue and resulting ascriptions of responsibilities in each document. Since not all documents include information for all these aspects, only those with information provided will be considered in the analysis. ATME meeting documents will be also compared with each other to identify common story lines and discourse coalitions between actors.

The analysis of the ATME meeting documents will be extended by the analysis of the ATME report. Also the ATME report is to be examined regarding issue descriptions, adverse consequences and ascriptions of responsibilities. Any information in the report on working groups or the like that were established during the ATME and results of such discussions mentioned in the ATME report will be included in the analysis. The ATME report is particularly important for information on the main discussions during the ATME. Special attention is given to agreements between some or all actors as well as extended discussions on a certain topic, where different actors state different points are expressed. In the case of exchanging views, any references made in the statements should be followed up to obtain more information. With reference to background information on discourses preceding the ATMEs, the analysis of the ATME report – in addition to the meeting documents – should be sensible to any changes in responsibility ascriptions. ATME Recommendations to the subsequent ATCM will be considered thoroughly with respect to the preceding discussion and, again, ascriptions of responsibilities. Responsibility ascriptions in the Recommendations will be compared with responsibilities mentioned in the meeting documents to identify potential influences of certain actors.

4.7.5. Follow up discourse at subsequent ATCMs

ATME reports have to be presented at the subsequent ATCM. The subsequent ATCM for both case studies is ATCM XXXIII. Therefore, responses to the ATME reports and included Recommendations will be examined within the ATCM XXXIII report. Responses can be discussions in the report on individual ATME Recommendations, or adopted measures, or both. Within discussions on individual ATME Recommendations, the focus of the analysis is on agreements or disagreements among actors participating in the discussion. The extent of the documented discussion, the number of actors involved and the identification of the actors can be a clue for potential conflicting views. In such cases, the ATME report is to be re-examined if potential conflicts are already observable.

For the further development of each case study discourse, the Antarctic Treaty Secretariat's database and search tool is useful again. A preliminary examination can be done by considering the volume of meeting documents submitted to ATCMs after the ATMEs, which should be searched under given categories relevant to the ATME discourses (e.g., tourism, safety and operations in Antarctica, climate change). Increasing or decreasing numbers in document submissions in a certain category can indicate whether the ATMEs had an influence on the ATCM discourses. Titles and authors of listed meeting documents in the search results can give further clues regarding focus and actors participating in the proceeding ATCM discourses. Another way to follow up ATME discourses at following ATCMs is to examine ATCM reports in terms of changes in focus in discussions under ATME related agenda items.

4.7.6. Comparison of case studies and research questions

After analysing each case study separately, a comparison of both case studies will follow in terms of differences and similarities between the case studies. Particular similarities between case studies may bring more general patterns of ATS value and belief systems to light. With respect to the research questions, structures in the ATME discourses regarding the identification of certain roles that are ascribed to Antarctica, conflicts that are based on values and potential changes in value and belief systems will be examined on grounds of the analyses of the two case studies.

The two case studies compared and answers to research questions will be included in the final discussion in Chapter 7.

4.7.7. Limitations

The discourse analysis will be limited to the analysis of documents, given the volume of ATS documents available. Hajer suggests in his discourse analysis approach a combination of document analysis and interviews with key players.[43] Interviews allow the generation of more information on specific questions that emerge in the document analysis. This will not be the case in the scope of the present investigation.

[43] Basic steps of Hajer's discourse analysis approach are provided on Hajer's website: http://www.maartenhajer.nl/?page_id=14 (accessed: 27/11/2014)

5. Case Study I: The Management of Ship-Borne Tourism in the Antarctic Treaty Area

The ATCPs agreed on organising an ATME on the Management of Ship-borne Tourism in the Antarctic Treaty Area at the XXXII ATCM (see Decision 7 (2009)). Decision 7 (2009) requested an expert meeting to be convened in Wellington, New Zealand, to discuss matters related to the management of Antarctic ship-borne tourism around the following topics (Item 2):

1. Antarctic ship-borne tourism trends over the past 10 years, maritime incidents and future projections;
2. Developments in the IMO relating to ship-borne tourism in the Antarctic Treaty Area;
3. Maritime Safety in the Antarctic Treaty Area:
    a. The prevention of a maritime incident in the Antarctic Treaty Area:
        i. Ship design and construction of vessels, safe vessel operation;
        ii. Hydrography and charting;
        iii. Port state control;
    b. Maritime SAR;
4. Protection of the Antarctic Environment:
    a. Environmental safeguards:
        i. Impacts of ship-borne tourism on the Southern Ocean;
    b. Emergency Response Action:
        i. Oil pollution response and environmental clean-up;
5. Vessels flagged to non-Parties;
6. Cooperation between the ATCM, IMO and IHO.

Eligible participants were experts from all ATCPs in addition to invited experts. Decision 7 (2009) invited all Non-Consultative Parties, COMNAP, IAATO, ASOC, IMO, WTO, IUCN, IHO, UNEP and Maritime Rescue Coordination Centres (MRCCs), "particularly those from Parties with Search and Rescue Responsibilities in the Antarctic Treaty Area" (Item 3), to send their representative experts to the ATME. Finally, Decision 7 (2009), with reference to Recommendation IV-24, required New Zealand as the host of the ATME to submit the meeting's report to the subsequent 2010 ATCM XXXIII for consideration.

Decision 7 (2009) set the scene for the ATME; not just defining its actors, purpose and content, but also time and location of the action situation. The issue of ship-borne tourism in Antarctica, however, has a long history in the ATCMs. For this reason, the following section will provide background information on the preceding discourse within the ATCMs before going into detail with the results of the analysis of the ATME discourse.

5.1. Background

Tourism has been on the ATCM agenda regularly since 1966. From the mid-1960s onwards, ATPs expressed repeatedly their concerns about activities of the tourism industry in the Antarctic region while emphasising the risks tourism activities entailed for most basic principles of the Antarctic Treaty. For example, Recommendation IV-27 (1966) remarks how ATPs recognise that "the effects of tourism activities may prejudice the conduct of scientific research, conservation of fauna and the operation of Antarctic stations." In Recommendation VI-7 (1970), ATPs consider the "harmful effects" tourism activities might have on both scientific programmes and the Antarctic environment. For decades, ATPs have commented on the increasing number of visitors entering the Antarctic Treaty area each year (e.g.,

Recommendation VII-4 (1972), Recommendation VIII-9 (1975), Recommendation XVI-13 (1991)). They also noted, early on, the additional challenges tourism activities might cause for NAPs in the event of an emergency (Recommendation X-8 (1979)). Moreover, although all people who travel to Antarctica are visitors in the strict sense of the word as all stays are only temporary, ATPs explicitly exclude "scientists conducting research (…) or individuals engaged in official governmental activities" from their definition of a visitor to Antarctica (Resolution 5 (2005)).

As outlined in Chapter 3, the Antarctic Treaty clearly declares scientific research conducted in Antarctica as a legitimate, even desired human activity in Antarctica. Less clear is the status of human activities in Antarctica conducted by other than scientific programmes. The Antarctic Treaty also highlights the interest of all humankind and that Antarctica should be used for peaceful purposes only. As long as Antarctic tourism does not interrupt peace in Antarctica, it is a legitimate human activity in the Antarctic Treaty area. This fact seems to be acknowledged by the Protocol, which explicitly includes tourism in its provisions for human activities in Antarctica. However, ATPs' concerns about Antarctic tourism remain regardless. An ATCM Working Group on tourism (and non-governmental activities) was first established at the ATCM IV in 1966, became more regular in the mid-1970s and meets at every ATCM nowadays.

An ATME was convened on "Guidelines for Antarctic Shipping and Related Activities" in London, United Kingdom, in 2000 (17-19 April). This ATME was a direct response to the IMO's plan to develop non-mandatory polar shipping guidelines for the Arctic only (Decision 2 (1999)). The IMO's original plan to develop an International Code of Safety for Ships in Polar Waters (Polar Code) had been welcomed by ATPs, who recognised the benefits of such a code for shipping in Antarctic waters (Resolution 3 (1998)). But ATPs also felt that the Polar Code did not consider appropriately special requirements for Antarctic conditions, notably the aspect of "design, constructions, manning and equipment of ships" (Article 10, Annex IV, Madrid Protocol). ATPs were asked to pass these concerns through their national representatives to the IMO (WP41 & IP40, ATCM XXV). When the IMO's Maritime Safety Committee (MSC) decided at their 71st session in 1999 to develop the code as "non-mandatory guidelines" and to "exclude Antarctica from the area of application (…) unless Antarctic Treaty Consultative Parties decide otherwise", alarmed ATCPs decided at the following ATCM XXIII on the need for an ATME to be held (Decision 2 (1999)).

The 2000 ATME's objective was to "draft guidelines for Antarctic shipping and related activities" (ibid.), which the meeting accomplished by developing a non-mandatory "Handbook of Information" (ATME final report, WP24, ATCM XXIV). Due to the little progress at the ATCM XXIV in 2001, the United Kingdom, who had hosted the 2000 shipping ATME, requested COMNAP to review available drafts of the IMO Arctic guidelines and evaluate its applicability to Antarctica (WP41 & IP40, ATCM XXV). This request was repeated at the ATCM XXVI in 2003, after the IMO had adopted the *Guidelines for Ships Operating in Arctic Ice-Covered Waters* in late 2002. In its report, COMNAP concluded that, with some modifications, the IMO Arctic guidelines would be appropriate for the Antarctic (WP9, ATCM XXVII). COMNAP further provided an edited version of the IMO Arctic guidelines for "Guidelines for ships operating in Arctic and Antarctic Ice-Covered Waters." These guidelines for both polar regions were later decided to be put forward to the IMO for consideration (Decision 4 (2004)). The IMO adopted the *Guidelines for Ships Operating in Polar Waters* on 3 December 2009 – only a week before the ATME on the Management of Ship-Borne Tourism in the Antarctic Treaty Area.

In 2004, another ATME was convened in Tromsø, Norway on "Tourism and Non-governmental Activities in Antarctica" (22-25 May). With Decision 5 (2003), ATCPs at the ATCM XXVI had commissioned the ATME to discuss the following topics:

1. Monitoring, cumulative impact and Environmental Impact Assessment;
2. Safety and self-sufficiency, including search and rescue and insurance;
3. Jurisdiction, industry self-regulation, and an analysis of the existing legal framework and identification of gaps;
4. Guidelines;
5. Adventure (extreme) tourism and government sponsored tourism; and
6. Co-ordination amongst national operators.

This agenda was the result of comprehensive discussions at preceding ATCMs. Since the ATCM XXIV in 2001, concerns became louder about certain developments in Antarctic tourism turning into management issues. There was particular scepticism about any activity that could be labelled "adventure tourism" or the operation of large cruise vessels in the Antarctic Treaty area (final report, ATCM XXIV). Both IAATO and COMNAP submitted reports to the ATCM XXV in 2002. IAATO reported on an informal meeting on Antarctic tourism (IP30, ATCM XXV), while CONMAP informed about a survey on "the interaction between national operators, tourists and tourism operators" (IP27, ATCM XXV).

The reports of the umbrella organisations of the tourism industry and NAPs both conclude with gaps in the existing regulatory framework regarding tourism and non-governmental activities in the Antarctic Treaty area. In particular, adventure tourism represents significant safety risks, but legal means available to ATPs are not suitable to regulate these activities. ATS legal means are mainly designed for environmental impacts, but do not address high safety risks. In addition, risks associated with adventure tourism potentially increase SAR demands. Since SAR operations are very costly, particularly in remote areas such as Antarctica, the need for requirements of appropriate insurance and contingency planning for tourism operators is emphasised. Large cruise ships, because of the large number of passengers they carry, also pose SAR challenges. These types of ships often use heavy fuel oil, which makes them more problematic as they could cause significant damage to the Antarctic environment in case of an accident. At the other end, the IAATO and COMNAP reports identify concerning practices of ATPs regarding the implementation of ATS regulations. Here the "lack of implementation and of inconsistency in implementation of measures" is highlighted (IP30, ATCM XXV, p. 3).

The report of the 2004 ATME confirms the struggle to regulate tourism through ATS tools as well as the importance of adequate insurance for non-governmental expeditions. The expert meeting identifies another management problem related to vessels flagged to non-Treaty Parties operating in the Antarctic. Any tourism guidelines adopted by ATCMs would not cover these vessels (WP3, ATME 2004).[44] The 2004 ATME report recognises IAATO's important role in the industries self-regulation efforts[45], but makes clear that the primary responsibility is with the ATPs.

[44] It should be noted that the issue refers to the ship and not necessarily to the operator of the ship. The state in which a ship is registered and whose flag the ship is carrying can differ from the state in which the operator is based. Therefore, the ship and the operator of the ship can be bound to different jurisdictions.

[45] Since its establishment in 1991, IAATO developed a framework of guidelines and operational procedures while requiring compliance from all its members. IAATO explicitly seeks for "best practice" to minimise environmental impacts, and sets high standards to ensure safety operations and environmental safeguard. IAATO guidelines and procedures include visitor guidelines addressing interactions with wildlife, protected areas, and scientific research conducted in Antarctica, decontamination guidelines and guidelines to prevent the introduction of invasive species. For its member tour operators, IAATO developed a *Vessel Emergency Contingency Plan* and an *Emergency and Medical Evacuation Response* as well as a vessel tracking system. In addition, IAATO provides annually a *Checklist* and *Seasonal Instructions for Expedition Leaders and Ships' Officers* to its members. (IP72

An important result of the 2004 ATME was Measure 4 (2004) decided at the following ATCM XXVII. Measure 4 (2004) on Insurance and Contingency Planning for Tourism and Non-governmental Activities in the Antarctic Treaty Area expresses the ATPs' desire for tourist and non-governmental activities to be conducted in a "secure and self-sufficient manner." To this end, and to avoid impacts on NAPs, tourist and non-governmental operators have to meet ATPs health and safety requirements in order to get approval to travel to Antarctica. Such requirements include appropriate contingency plans, medical care, evacuation and life saving equipment, as well as an adequate insurance to cover all costs that would arise in case of an emergency. Later, ATPs took actions regarding issues related to large passenger ships. At the ATCM XXVIII, ATPs adopted Decision 8 (2005), in which they agreed to require actions from the IMO to restrict the use of heavy fuel oil in Antarctic waters. With Resolution 4 (2007), ATPs further recommended that their own Parties discourage or decline tourism ships carrying more than five hundred passenger form travelling to Antarctica. Two years later, ATPs agreed on Measure 15 (2009), which limits landings of tourism ships in Antarctica to those vessels carrying only up to five hundred passengers. The IMO, on its part, agreed in June 2009 to amend the International Convention for the Prevention of Pollution from Ships (MARPOL) regarding a ban of use or carriage of heavy fuel oil in the Antarctic area. The ban, which came into force in August 2011, particularly affects the segment of the Antarctic tourism industry that operates large ships.

After the 2000 shipping ATME and the 2004 tourism ATME, the 2009 ATME on ship-borne tourism appears like a logical sequel, merging the shipping discourse and the tourism discourse. Key linking elements are safety regulation issues, in which the two discourses overlap. There is clearly awareness of a number of issues associated with both shipping and tourism, long before the 2009 ship-borne ATME was decided. However, an event that occurred during the season 2007/2008 and gained some media attention brought a new dynamic into the ATCM discussions. On 23 November 2007 the *M/S Explorer*, a vessel operated by G.A.P. Adventures, a Canadian travel company and IAATO member, sank near the South Shetland Islands. It was the first tourist ship sinking in Antarctic waters. All one hundred passengers and fifty-four crewmembers were rescued by another IAATO vessel, the Norwegian cruise liner *M/S Nordnorge*. Chile and Argentina coordinated a SAR operation.

Although run by a Canadian tour operator, the *M/S Explorer* was registered in Liberia, a non-member state to the ATS. The Liberian Bureau of Maritime Affairs conducted an investigation. In their report, which was published in March 2009, the Liberian investigators identify the *M/S Explorer's* collision with ice as the ultimate cause of the sinking, with the Master's ill-informed decision to enter an ice field he presumed to be first year ice (but that a report of the Chilean Navy later confirmed to be much harder land ice) contributing to the disaster. The Liberian Report refers the Master's misjudgement to his non-familiarity with the conditions of Antarctic waters, despite his extensive experience in other waters. Passengers and crew, who abandoned the ship shortly after the collision, spent several hours in uncovered lifeboats and rigid inflatable boats on open water before they were rescued. SAR teams refer to the luck of good weather conditions that the rescue operation could succeed without fatalities (WP43, ATCM XXXI). The incident caused some spillage of fuel, which was observed and mitigated by the Chilean RCC (IP11, ATCM XXXI; IP120, ATCM XXXII). No pollution of Antarctic flora or fauna was observed, either on the scene or in the surrounding area (WP43, ATCM XXXI).

ATCM XXV (2002), IP75 ATCM XXV (2002); IP 85 ATCM XXV (2002); WP12 ATME 2004; IP83, ATCM XXXI; see also IAATO's website http://iaato.org/guidelines-and-resources)

Figure 5.1: *M/S Explorer* sinking – source: NBC News, © AFP – Getty images

Figure 5.2: Evacuated passenger from *M/S Explorer* – source: BBC

Strong reactions at the following ATCM XXXI in 2008 included an entire section in the final meeting report to be devoted to the *M/S Explorer* incident under agenda item 9: *Safety and Operations in Antarctica*. Comments mentioned there comprise notions like "the most serious incident in the Treaty Area in many years" (p. 38) or the "good fortune" for a successful rescue, which otherwise could have been a "major tragedy" (p. 39). The IHO states that incidents such as the *M/S Explorer* are inevitable considering the lack of adequate charts, which are crucial for safe navigations in Antarctic water. The next maritime incident was only a matter of time. In this context, the IHO also held a seminar on the Importance of Hydrographic Activities in Antarctica at the ATCM XXXI.

The *M/S Explorer* incident is again mentioned under agenda item 11: *Tourism and Non-Governmental Activities in the Antarctic Treaty Area*. Here, the United States is quoted as taking the sinking of the *M/S Explorer* as a "wake-up call" while underscoring importance of better regulation of tourist activities (p. 46). Similar expressions are used by the ICG on Issues Concerning Passenger Ships Operating in Antarctic Waters, which had been established at the previous ATCM XXX in 2007.[46] In their report to the ATCM XXXI, the ICG comments on the sinking of the Explorer as follows:

> "Incidents that do not result in casualties can be important indicators or 'early warnings' signs that maritime controls may need improvement thus highlighting situations with potentially serious consequences." (WP36, ATCM XXXI, p. 4)

Both the ICG and the United States emphasise the media coverage of the incident, pointing to the important factor of public opinion and the ATCM's responsibility to treat tourism policy as a priority (WP36 & WP43, ATCM XXXI). Antarctic tourism policy in general is a major point of discussion within agenda item 11, accompanied by a sense of need for action. A "more proactive approach to tourism management" is repeatedly stressed (p. 43). Particularly relevant in view of the 2009 ATME is another comment in the ICG report, which points to the perceived origin of ship-borne tourism management issues. Although acknowledging the importance of safety and environmental standards for tourism vessels, the ICG report concludes that, ultimately, it is the intensified ship traffic that increases the pressure on the management as well as the Antarctic environment (WP36, ATCM XXXI). This comment provides a logic that will be seen continued in the ship-born tourism ATME discourse. Referring to shipping in general rather than ship-borne tourism in particular indicates an understanding of the core issue as not a tourism-specific one. However, the comment is made in a ship-borne tourism context and thus brings the general shipping issues into a tourism focus. The merging of the Antarctic tourism and shipping discourses is further obvious in the

[46] Norway was coordinating the ICG. In its report, it acknowledges active participation by Argentina, Australia, Netherlands, New Zealand, United Kingdom, United States, IAATO, IHO and ASOC, who all contributed the discussion (WP36, ATCM XXXI).

interactions between the ATCM working groups on Tourism and Non-Governmental Activities and the Safety and Operations. The final report to the ATCM XXXI informs about a joint session between the two working groups during the meeting, which was repeated at the ATCM XXXII.

The link between the ICG and the 2009 ATME is explicit in the ATCM XXXI report, where New Zealand offers to host an ATME on the management of ship-borne tourism with reference to the ICG. New Zealand formally proposed the ATME again a year later at the ATCM XXXII. In justifying the need for an ATME, New Zealand uses the exact wording of Resolution 6 (2008) in emphasising ATPs' concern about "the risk of a serious humanitarian and environmental maritime incident" (WP30, ATCM XXXII, p. 3). Important to mention in this context is the fact that the sinking of the *M/S Explorer* was only one, although the worst, in a series of Antarctic maritime incidents involving tourist vessels in a relative short period of time. Several stakeholders in the ATCM discourse highlight this fact. During the season 2006/2007 passenger vessels *M/S Lyubov Orlova* and *M/S Nordkapp* grounded by the South Shetland Islands (WP37 & IP119, ATCM XXX). The United States, United Kingdom and ASOC all comment on the Nordkapp incident with respect to potential safety and environmental risks in meeting documents submitted to the ATCM XXX in 2007 (WP6, WP23 & IP85). Then, in the following Antarctic season 2007/2008, in addition to the Explorer incident, the *M/S Fram* experienced an engine failure while navigating around the Antarctic Peninsula (IP121, ATCM XXXII). In the 2008/2009 season, two passenger vessels, the *M/S Ushuaia* and the *M/S Ocean Nova*, grounded in the Antarctic Peninsula region.[47] Against this series of maritime incidents, considerable efforts were made to address and improve Antarctic SAR. Together with RCC authorities, COMNAP organised SAR workshops in 2008 (Valparaiso, Chile, 12-14 August) and 2009 (Buenos Aires, Argentina, 2-4 November). Beside COMNAP, engagements of Chile and Argentina are particularly noteworthy. These preceding discussions also fed into the ATME discourse.

Before turning to the ATME discourse, a few words on two Resolutions that were also agreed at the ATCM XXXII alongside Decision 7 (2009). Resolution 7 (2009) on *General Principals of Antarctic Tourism* and Resolution 8 (2009) on the *Antarctic Shipping Code* are important because they, in some way, mark milestones in the broader discourse on tourism within the ATCMs. General principles are a first step in the attempt for an overarching ATCM management strategy to deal with Antarctic tourism. The principles focus on conformity with the ATS, no long-term degradation of the nature of Antarctica and its values, priority of scientific research, proactive development of regulations within a consistent framework, co-operations and best practice as well as the education of visitors. The Antarctic shipping code makes explicit the ATPs desire for mandatory shipping regulations and directed to the IMO. Resolution 8 (2009) also refers, inter alia, to the situations of ship-borne tourism in Antarctica. Discussions around the development of an IMO shipping code is integrated in the 2009 ATME framework through Decision 7 (2009) topic 2 on developments within the IMO.

[47] These two incidents are also mentioned in New Zealand's proposal to host an ATME on the management of ship-borne tourism in the Antarctic (WP30, ATCM XXXII).

5.2. Setting and staging of the 2009 ATME

As mentioned above, Decision 7 (2009) determines most of the setting for the 2009 ATME on ship-borne tourism. The final report of the ATME confirms the meeting's understood purpose in accelerating Antarctic policies with respect to the management of ship-borne tourism by providing recommendations to the ATCM based on experts' knowledge and exchange. The ATME was held in New Zealand, one of the original signatories to the Antarctic Treaty and claimant over Antarctic territory. New Zealand sits also in relative proximity to Antarctica. As a Southern Ocean Rim State, New Zealand is one of the five RCCs with responsibility in the Antarctic. New Zealand has a number of reasons why it was interested in hosting an ATME about ship-borne tourism; New Zealand functions as a gateway to Antarctica, which is used for tourism; simultaneously, it is obligated to provide SAR operations; and it claims a part of Antarctica as its territory. However, other countries such as Chile and Argentina could have been interested in hosting the ATME for the same reasons. The majority of Antarctic ship-borne tourism operates in the Antarctic Peninsula region using Chile and Argentina as gateways. Further, all maritime incidents mentioned in the previous section occurred in this region – with Argentina and Chile responsible to coordinate SAR operations.

There is reason to suspect that New Zealand's choice for Wellington as location of the 2009 ATME was a strategic decision to hold the ATME in a political environment. Wellington is the capital and seat of the New Zealand government, but also headquarters of the New Zealand RCC (Maritime New Zealand). On the other hand, the New Zealand Antarctic programme is based in Christchurch. There is an interesting analogy when comparing the 2009 ATME with the previous two ATMEs. The 2000 ATME on shipping was also held in the United Kingdom's capital London, which also happens to be location of the IMO headquarter. The British Antarctic Survey, the United Kingdom's Antarctic programme, however, sits in Cambridge. By contrast, the 2004 ATME on tourism was held in Tromsø, where the Norwegian Antarctic programme is located and not in the capital Oslo. From a New Zealand perspective, the government as the driving force behind the 2009 ATME becomes further apparent in the assignment of official positions at the expert meeting.

Caroline Forsyth, (at the time) Deputy Secretary of the New Zealand Ministry of Foreign Affairs and Trade (MFAT) was elected as one of the meeting's Co-Chairs. Two more MFAT representatives were elected as Head of the Secretariat of the meeting and Head Rapporteur. The other Co-Chair was Olav Orheim, a Norwegian scientist who was already Chair of the 2004 tourism ATME. Orheim also used to be Chair of the CEP (1998 – 2002). Affiliated with the CEP was also Ewan McIvor[48] from the Australian Antarctic Division, who became one of the ATME Vice-Chairs. His counterpart was Lieutenant Commander Carlos Salgado of Chile's RCC under the Chilean military, the Direccíon General del Territorio Marítimo y de Marina Mercante (DIRECTEMAR). At the time of the 2009 ATME, Salgado was also Chair of the IMO Sub-Committee on Radiocommuincation and Search and Rescue (COMSAR). Considering the backgrounds of the ATME Chairs and Vice-Chairs, there is a pattern observable. Official positions are equally shared between governmental representatives related to national RCCs and representatives of NAPs with links to the CEP.

The agenda for the 2009 ATME was adopted without modification from the topics set for discussions by Decision 7 (2009). The selection of topics, in turn, as demonstrated in the previous section, derives from the well-established discourses on shipping and tourism in the ATCMs. The influence of broader ATCM discourses is particular obvious in the language used

[48] McIvor was recently elected as Chair of the CEP at the ATCM XXXVII in 2014 and is currently holding this position.

in the opening address by Catherine Taylor in her position as CEO of Maritime New Zealand, New Zealand's maritime RCC and lead representative at the IMO.[49] Taylor uses again the phrase "risk of environmental and humanitarian disaster", borrowed from the ATCM discourse as discussed in the previous section. In the following discussion on the ATME discourse, it will be seen that this phrase becomes programmatic for the ATME. Taylor also confirms that ship-borne tourism is a priority issue for the ATCM as well as the IMO and has been for some time, but that recent incidents in Antarctic waters have highlighted the urgency of the matter. She identifies ice, extreme weather, isolation and limited charting as major hazards for shipping in Antarctic waters and emphasises the importance of co-operation between RCCs including the exchange of information and knowledge.

The terrible and long-term impacts of oil spills are highlighted in Taylor's speech, and she postulates prevention as the best option to protect the Antarctic environment. This comment is followed by a mention of the IMO's intention to ban the use and carriage of heavy fuel in the Antarctic area and its development of a mandatory Polar Code. Taylor directs her opening address to the ATME openly from the perspective of New Zealand's representative to the IMO. As such, she evaluates the mandatory Polar Code as an "important initiative" with the "potential to significantly reduce the risks of a shipping casualty" and the capacity to be applied to all vessels operating in polar waters "regardless of their flag" (final report, ATME 2009, p. 37). This is a clear statement from a New Zealand official in support of mandatory regulations for shipping in Antarctic waters as a solution for existing safety and environmental issues in this area. Taylor keeps this statement in general terms, speaking of shipping in general rather than tourism in particular; however, ship-borne tourism is certainly included. She concludes her speech by emphasising that through combined efforts of the ATCM, IMO and other relevant organisations safety for passenger vessels can be significantly increased.

5.3. Actors

In total, the meeting included seventy-two delegates from nineteen ATCPs and fourteen invited experts from six international organisations (Table 5.1). The Secretariat was also represented at the ATME. ATCPs who sent representatives to the ATME included Argentina, Australia, Chile China, France, Germany, Italy, Japan, New Zealand, Norway, Peru, Russia, South Africa, Spain, Sweden, The Netherlands, United Kingdom, the United States, and Uruguay. Despite the apparent diversity of parties at first sight, delegates give a rather characteristic picture at a second look. New Zealand clearly dominated the meeting in numbers with twenty-two delegates attending the ATME (Figure 5.3). Most delegates were affiliated with their national ministry of foreign affairs, Antarctic programmes, national maritime administration or safety authority (Figure 5.4). The five maritime RCCs with responsibility in the Antarctic Treaty Area (Argentina, Australia, Chile, New Zealand and South Africa) were all represented at the ATME. It can be further assumed that most of the represented ATCPs were experienced in interacting with the tourism industry. Of the Antarctic tour operators that had been active in the Antarctic Treaty Area during the season 2008/2009, a vast majority were based in an ATCP state (Figure 5.5). Italy, Peru, Spain and Uruguay sent their diplomatic representatives in New Zealand to the meeting. Foreign embassies in New Zealand are based in Wellington, conveniently located for the ATME. Ambassadors or their representatives, however, come likely with less Antarctic tourism or shipping expertise than other experts.

[49] Taylor's opening speech is included in the final report to the 2009 ATME (pp. 36-38).

Table 5.1: Overview ATME actors and papers submitted

	Antarctic Treaty Party	**Dele-gates**	**Affiliation / Role** (*head of delegation in italic*)	**WP**	**IP**
1	Argentina	4	*Ministry of Foreign Affairs*, Argentine Navy (SAR Services), Embassy of Argentina in New Zealand	1	0
2	Australia	7	*Australian Antarctic Division*, Ministry of Foreign Affairs, Australian Maritime Safety Authority	3	0
3	Chile	6	*Antarctic Division at Ministry of Foreign Affairs*, Chilean Force, DIRECTEMAR, Embassy of Chile in New Zealand	1	0
4	China	2	*Department of Treaty and Law/Ministry of Foreign Affairs*; Chinese Embassy in New Zealand, Maritime Safety Administration	0	0
5	France	1	*French Southern & Antarctic Administration*	1	0
6	Germany	2	*Antarctic Division/Federal Environment Agency*; Ministry Shipping and Hydrography	0	0
7	Italy	1	*Italian Embassy in New Zealand*	0	0
8	Japan	1	*Global Environment Division/Ministry of Foreign Affairs*	0	0
9	New Zealand	22	*Ministry of Foreign Affairs and Trade*, Antarctica NZ, Land Information NZ, National Institute of Water & Atmospheric Research, University of Canterbury, Maritime NZ	8	2
10	Norway	4	*Ministry of Foreign Affairs*, Norwegian Maritime Directorate, Research Council Norway, Ministry Trade & Industry	0	1
11	Peru	1	*Embassy of Peru in New Zealand*	0	0
12	Russia	4	*Legal Department/Ministry of Foreign Affairs*, Embassy of the Russian Federation in New Zealand, Russian Antarctic Expedition	0	0
13	South Africa	1	*Centre for Sea Watch & Response/South African Maritime Safety Authority*	0	0
14	Spain	2	*Embassy of Spain in New Zealand*	0	0
15	Sweden	1	*Swedish Polar Research Secretariat*	0	0
16	The Netherlands	1	*Ministry of Transport, Public Works and Water Management*	0	0
17	United Kingdom	5	*Foreign and Commonwealth Office*, Marine & Coastguard Agency, British Antarctic Survey	1	1
18	USA	6	*US Department of State*, National Oceanic & Atmospheric Administration, US Coast Guard, US Environmental Protection Agency, National Science Foundation	0	0.5*
19	Uruguay	1	*Embassy of Uruguay in New Zealand*	0	0
Organisations:					
1	ASOC	4	*Senior Advisor (NL)*, Ice Pilot (NZ), IMO Coordinator (UK) Lecturer Law (NZ)	0	4
2	COMNAP	1	*Executive Secretary*	0	1
3	IAATO	6	*Executive Director (USA)*, Environmental Operations Director (USA), Executive Committee (USA), IAATO members (NZ)	0	2.5*
4	IHO	1	*Director (Monaco)*	0	2
5	IMO	1	*Senior Technical Officer (UK)*	0	1
6	UNWTO	1	*Long-term Collaborator (Spain)*	0	1

* half scores refer to co-authored meeting documents

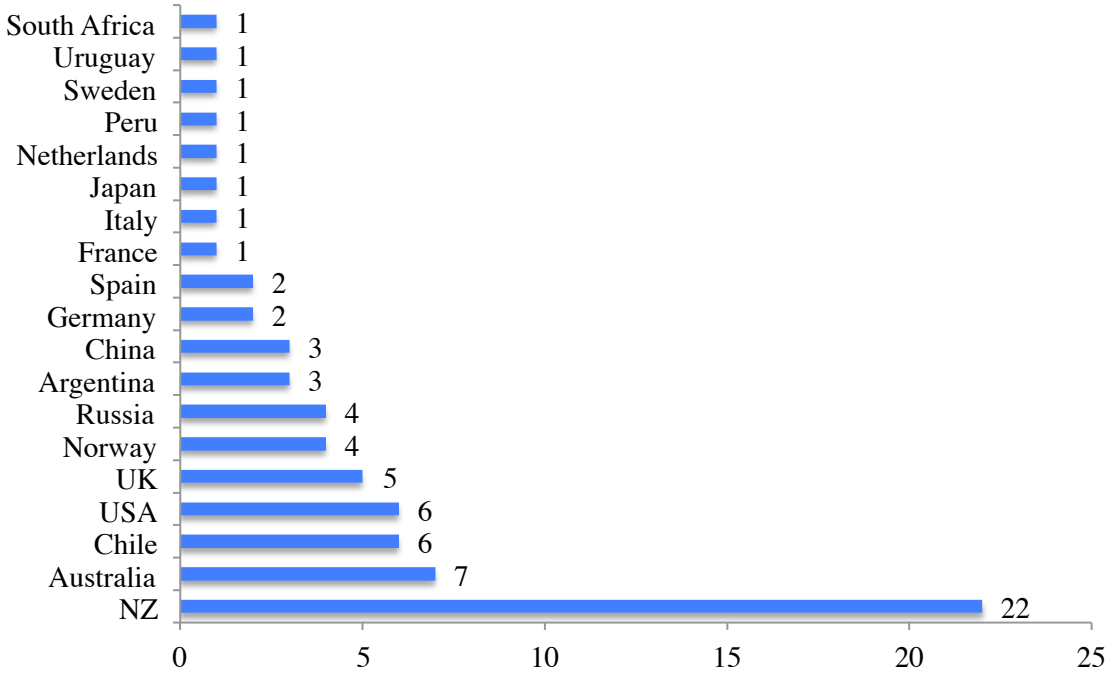

Figure 5.3: Number of delegates present at ATME per ATP – source: 2009 ATME report

Figure 5.4: Affiliations of ATP delegates at 2009 ATME – source: 2009 ATME report

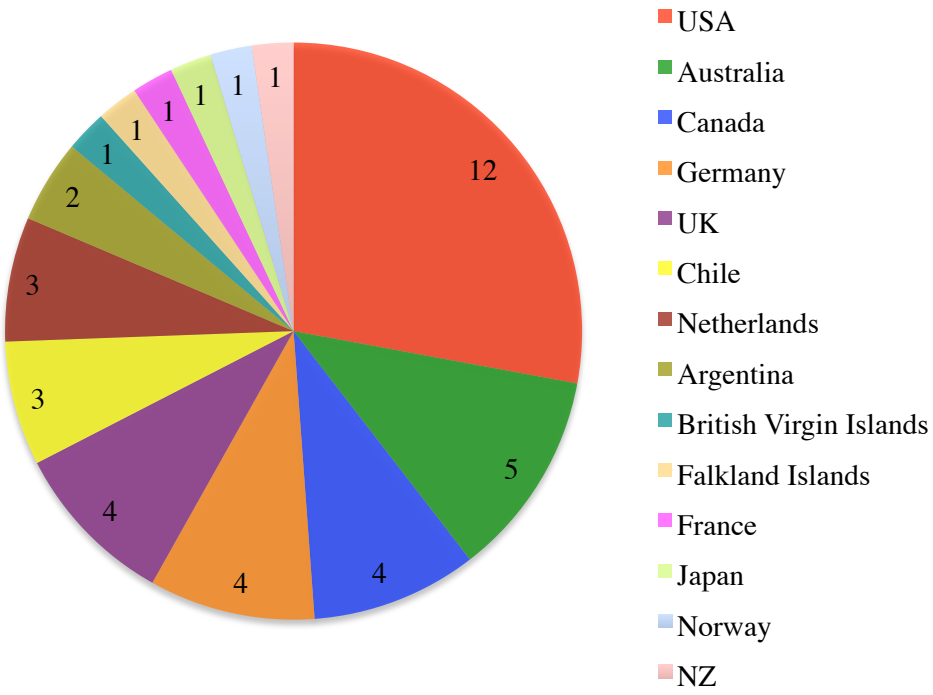

Figure 5.5: Tour operators active in the Antarctic Treaty Area during season 2008/2009 classified by country of headquarters' location – source: IAATO

Experts from other invited organisations, who attended the meeting included COMNAP, IAATO, ASOC, the IMO, the UNWTO and the IHO. With the ATME's focus on ship-borne tourism, the relevance of the meeting to IAATO is obvious. As already explained in Chapter 3, IAATO represents the Antarctic tourism industry, and is directly addressed in the ATME. On a global scale, this also applies to the UNWTO as the UN agency "responsible for the promotion of responsible, sustainable and universally accessible tourism."[50] From a shipping perspective, the IMO and IHO are important players and experts, whose participation in the ATME is critical. Both organisations are either directly or indirectly addressed in the ATME's agenda. The IMO, to whom an entire agenda item is dedicated, is the UN agency specialised and responsible for setting international shipping standards through a universal regulatory framework. Its particular interest in the ATME is most likely related to the development of the Polar Code, on which the IMO was already working at the time of the ATME. The IHO is an inter-governmental organisation, which promotes hydrographic surveying and charting of all the world's oceans, seas and navigable waters[51] and is therefore indirectly addressed in agenda sub-item 'hydrography and charting'. As mentioned above, the IHO played an active role at ATCMs prior to the ATME, particular after the *M/S Explorer* incident. COMNAP has been very active in SAR matters, notably with its efforts in organising workshops on SAR operations in Antarctica. Finally, ASOC, who represents various environmental NGOs and specialises on Antarctic conservation, already participated in the 2000 shipping ATME and the 2004 tourism ATME, continuously promoting the protection of Antarctic environments.

Beside the invited expert organisations, who were represented at the ATME, it is worth noting that none of the invited Non-Consultative Parties attended the meeting, and both the IUCN and the UNEP did not take up their opportunity to take part in the meeting. As invited expert

[50] Cited from the UNWTO website http://www2.unwto.org/content/who-we-are-0 (accessed: 22/10/2014)
[51] See IHO website http://www.iho.int (accessed 22/10/2014)

groups they were considered important stakeholders by ATCPs – with their absence, the meeting missed potentially important voices.

In terms of active participation in the ATME discourse, which, here, refers to the submission of meeting documents and contributions to discussions during the meeting as documented in the final report, New Zealand takes also the lead. Of the total thirty-one meeting documents (both WPs and IPs) to the ATME, almost a third were submitted by New Zealand (Table 5.1). Among the New Zealand papers are also a number of background documents such as the latest draft of the IMO's Guidelines for Ships Operating in Polar Waters at the time (IP6) and a copy of Annex VI (Liability Arising From Environmental Emergencies) to the Madrid Protocol (IP11).[52] Other papers submitted by New Zealand address all topics on the agenda and make numerous recommendations. Particularly WP1, an overview paper provided by New Zealand, not only discusses a comprehensive list of aspects related to ship-born tourism[53], but also includes eleven recommendations. Authors of New Zealand papers differ and include RCC officials and scientists.

Australia is another ATCP that stands out with its contribution to the ATME. Perhaps most notably is its study on potential environmental impacts of ship-borne tourism (WP8). Here, Australia presented a list of its identified environmental aspects and potential impacts compared to existing regulations and guidelines (Appendix A). ASOC's engagement in terms of ATME papers and recommendations is also noteworthy. ASOC particularly highlights gaps in the regulation of tourism and environmental issues. IAATO, as the industry representation understandably eager to present their stance, provides information on latest ship-borne tourism statistics and trends (IP7) and informs about internal changes and amendments to operational standards for its members as a response to the Explorer incident (IP8). The latter was based on study of the Liberian Report IAATO's Marine Committee undertook. This effort, IAATO explicitly qualifies as an attempt to proof the organisation's "commitment to safe and environmentally responsible private-sector travel to Antarctica" (IP8, p. 3). Together with the United States, IAATO further submitted a paper with results from an analysis of tourist ship traffic patters (IP9).

Meeting documents also include reports about consultations and work done by other parties intersessionally between ATCMs and prior to the ATME. COMNAP reports from SAR workshops (IP10), Norway presents results from the work done in the scope of the ICG on Issues Concerning Passenger Ships Operating in Antarctic Waters (IP15), the IMO gives an update on its ongoing work and recent developments (IP5), and the UNWTO introduces UN reports on *Climate Change and Tourism: Responding to Global Challenges* (2008, UNWTO & UNDP), and *Tourism in Polar Regions* (2007, UNEP) as well as its publication *Indicators of Sustainable Development for Tourist Destinations* (2004) (IP16).

While all invited expert organisations, which attended the ATME, submitted at least one paper, eleven of the nineteen participating ATCPs did not submit any paper.

[52] The United Kingdom also re-submitted the final report of the 2000 ATME on Guidelines for Antarctic Shipping and Related Activities (IP12).

[53] WP1 is structured by the following aspects and order: 'lessons learned', 'previous efforts', 'cooperation with the IMO', 'Port State Control', 'SAR, Insurance and Contingency Planning', 'Hydrographic Surveying and Charting', 'Obligations under the Protocol on Environmental Protection', and 'Particularly Sensitive Sea Area/Area to be avoided'.

5.4. Discourse

The six topics related to current issues of ship-borne tourism in Antarctica set by Decision 7 (2009) differ in complexity and emphasis. Both maritime safety and environmental protection are further defined in several subsections while all other topics are single level. Like at ATCMs, submitted meeting documents are categorised by agenda items – which include the six topics determined in Decision 7 (2009). Some submitted papers fall into multiple categories as they address several topics in context. SPs are not considered as they contain the meeting's agenda, programme and list of participants, but do not address any of the topics as such. Comparing the topics in terms of the frequency of being addressed in meeting documents submitted to the ATME, trends in ship-borne tourism, maritime safety and environmental protection are the most common topics (Figure 5.6).

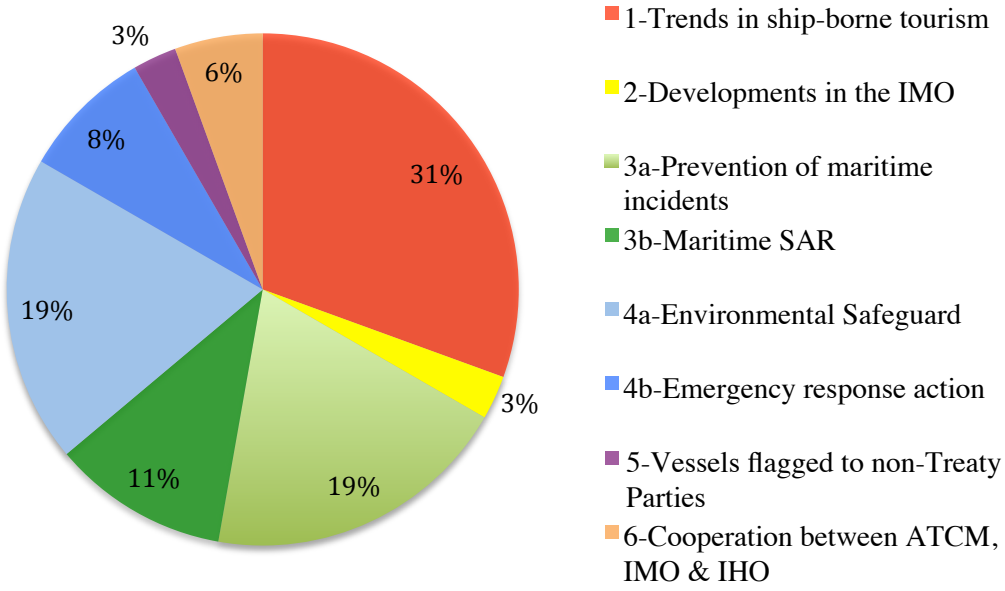

Figure 5.6: ATME meeting documents by agenda item (multiple assignments considered) – source: Antarctic Treaty Secretariat

However, the numbers of papers do not always reflect the importance given to the relevant topic. The best example is the developments in the IMO, which includes the Polar Code. The ATME established an ICG for in-depth discussions on the mandatory Polar Code. Such actions signify the high priority that is given to the topic by the meeting. Yet, this high priority is not represented in the one submitted meeting paper that was assigned to this topic.

In the following, the issue profile and adverse consequences identified in the meeting documents submitted by individual actors are discussed. For the discussion of assigned responsibilities found in the discourse, both meeting documents and additional information on debates during the meeting provided by the final report were used. Recommendations to the ATCM were taken from the final report. The identification of conflicts and coalitions are also based on discussions during the meeting as documented in the final report.

5.4.1. Issue profile and adverse consequences

The dominating story line in the 2009 ATME, which can be also inferred as the perceived core issue, is that increased ship-borne tourism is causing severe management problems to ensure both human safety and environmental protection. In this sense, it is not tourism or ship-borne tourism per se that is identified as the problem, but its scope. The overall perception of the problem that seems generally accepted can be summarised as follows: more maritime traffic and people present in the Antarctic region come with higher risks for maritime accidents, which, in turn, threaten human life and Antarctic ecosystems. It seems common sense that this situation calls for action towards preventative measures while filling gaps in regulatory systems.

Table 5.3 lists a number of quotes by various actors in the ATME meeting documents that represent this rationale. What is furthermore striking about these quotes is the similar rhetoric that is used. There are, however, variations in how the affected subject is emphasised in the story lines. Affected subjects can be categorised as: the Antarctic environment (including its non-human content), the people on board of passenger ships, and RCCs and ATCMs – as the responsible institution for the governance of Antarctica. Impacts of pollution, but particularly oil spills resulting from marine accidents, are a frequently mentioned adverse consequence for the Antarctic environment. Maritime accidents come also with adverse consequences for passengers by putting their lives at risk. The lack of adequate charts or the presence of sea ice are further linked to potential adverse consequences of unsafe navigation. An increase in maritime incidents and large numbers of passengers, but also insufficient communication and information available, can have serious consequences for the efficiency of SAR operations provided by RCCs. Also, if tourism operators use vessels registered in states that are not members to the ATS, then this has adverse consequences on the effectiveness of the regulations decided at ATCMs.

The latter represents a related but different issue identified in the 2009 ATME discourse, in which tourism practices is causing trouble for ship-borne tourism management and making ATS resolutions ineffective. Noting the lack of appropriate communication, adequate charts or other information belongs, again, to another issue aspect, which sees insufficient knowledge as obstacle for both safe human activities and efficient actions. Some actors, including ASOC and Chile, note that the issue of increased vessel traffic in Antarctic waters is not caused by the tourism industry alone, but is due to a general increase in human activity, including fishing and NAP operations in the region. In addition to the increased visits and passenger numbers, ASOC mentions diversification and geographic expansion as concerning tourism tends. Together with IAATO, the United States (however, making clear that their comments do not necessarily represent the view of its government) emphasise that tourist numbers are indeed dropping since the season 2008/2009, but admit that tourism is highly concentrated with exponential growth in certain areas. Therefore, the problem differs considerably between Antarctic regions, where especially vulnerable sites require special protection.

The meeting documents give also some indications for possible differences in how far an actor can go with her or his statements. While ATCP delegates simply note the need for efficient management, ASOC's statements are much sharper in pointing out the loss of control over ship-borne tourism. Given the general concerns about the risks of increased maritime traffic in the Antarctic area, the moderate statements of ATCP delegates could indicate constraints in these actors' control over choice (with reference to the theoretical model in Chapter 4).

Table 5.2: Excerpts from ATME meeting documents referring to the issue of increased ship-borne tourism and its adverse consequences

Meeting Document	Author	Description of increased ship-borne tourism	Consequence(s)
WP3	France	"The last decade has witnessed a huge growth in the presence of humans in Antarctica, in large part due to tourism and to non-governmental activities, (…)	(…) bringing to the forefront the need for the efficient management of personal safety and environmental protection."
WP13	Chile	"Without a doubt, it can be inferred from statistics that there has been a steady increase in the number of vessels navigating in the Antarctic Continent, not only tourist vessels but also scientific vessels. It can be also assumed that it will continue increasing and every time with bigger vessels and carrying more passengers. (…)	(…) This situation forces us to be alert and to enhance surveillance and alert measures in order to have a clear surface picture so as to act as effectively as any SAR case requires."
WP15	Argentina	"in line with this increase in vessel movement, several maritime incidents have occurred for different reasons (…)	(…) and they lead us to review the need to increase measures to improve maritime safety and prevent cases of maritime pollution."
IP1	ASOC	"Since tourism has become a major Antarctic activity in terms of the numbers of people, ships, and sites involved, (…)	(…) it makes sense that it becomes the focus of inspections to a greater degree than hitherto."
IP2	ASOC	"Some operating companies are now owned by parent companies that are not traditional Antarctic operators and involve practises such as the use of large ships from the global cruise industry and use flag of convenience, (…)	(…) with resulting loss of effective control by Antarctic Treaty Parties."
IP2	ASOC	"Reported increase in shipping, in the Southern Ocean, including but not limited to shipping related to tourism, (…)	(…) will inevitably result in an increased risk of incidents and potentially disastrous accidents in the Southern Ocean."
IP2	ASOC	"With increased traffic, (…)	(…) emissions to air form an emerging issue including the contribution of Antarctic tourism shipping to greenhouse gases."
IP11	New Zealand	"The marked increase in ship-borne tourism in the Antarctic Treaty area over the last decade (…)	(…) has increased the potential for incidents which may cause harm to the Antarctic environment. The entry into force of the Liability Annex will therefore have long term benefits for the Antarctic environment."
IP13	IHO	"The increase in traffic, couples with inadequate or inaccurate charts, (…)	(…) raises the risk of a potential incident involving vessels in the area running aground or colliding with underwater hazards that have not been adequately identified"
IP16	UNWTO	"Passenger numbers have increased substantially over the past decade and the number of ships landing may increase in the future. (…)	(…) There is therefore a need for increased vigilance at some of the sites to minimise the potentially negative impacts on such sites."

IAATO remarks how already initiated new legal provisions by the IMO, such as the ban of ships using or carrying heavy grade oil, will affect the tourism market. IAATO expects proportions of large ships (>500 passengers), but partly also middle-size ships (201-500 passengers) to vacate the Antarctic tourism market once the provision enters into force. This would eliminate one important aspect of the ship-borne tourism problem identified above. However, IAATO does expect consumer demands for Antarctic visits to continue in the future.

The IMO, for its part, makes very clear that shipping in Antarctica is not without risks. Apart from inadequate navigational aid – a problem that can be solved in principle – there is still the harsh and relentless nature of Antarctica, which represents inevitable hazards for navigation in this area. New Zealand climate scientists argue that "sea ice will remain an ubiquitous feature around Antarctica for the remainder of the 21st Century" (WP2, p. 3). Thus, Antarctic management will continue to be faced with risks related to shipping in Antarctica. Based on a risk assessment, the ICG report on Issues Concerning Passenger Ships Operating in Antarctic Waters presented by Norway identifies six hazards and associated consequences to consider with priority. First, 'unknown submarine topography' likely provokes a ship running aground. The second is 'localised or extreme weather conditions,' with the greatest concern of a ship colliding with ice. Third, 'variable ice conditions' may result in the stranding of a ship or the ship getting stuck in ice. Particularly ice could seriously damage and disable a ship, for example, if the propeller breaks. Fourth, 'inexperienced crew' may cause navigational errors with horrendous consequences, especially in the Antarctic. Fifth, 'deficiencies in SAR coordination, coverage, and assets' are critical in any case. Finally, 'tender operations', such as the use of small rigid-hull inflatable boats (RHIB), include the risk of capsizing while away from the mother ship.

Potential environmental impacts mentioned in the ATME documents as caused by ship-borne tourism in the Antarctic are plentiful. A detailed overview is provided by Australia (WP8). The comprehensive list of environmental aspects associated with Antarctic ship-borne tourism considers exceptional and emergency situations as well as routine situations. Environmental aspects resulting from emergency situations include the discharge of oil and other noxious liquid substances. As already pointed out above, impacts of emergencies are a major concern in the discourse with respect to severe environmental damage including wildlife mortality. There are also other abnormal events that may have implications on the Antarctic environment such as the transport of organisms into the Antarctic region through either discharge of the ship's ballast water or fouling on the ship's hull. Consequences of such events include the introduction of invasive species to the Antarctic, which may reduce Antarctic marine biodiversity or modify marine community compositions, alter ecosystem performances.

Most environmental aspects, however, are related to ship-borne tourism routines. Among them are discharge of sewage and garbage, noise pollution and emissions of light, breaking ice and anchoring, interactions with marine wildlife and Antarctic protected or managed areas, emissions of greenhouse gasses or simply the human presence. Beside pollution that might be caused by some aspects, repeatedly identified consequences of ship-borne tourism routines are the degradation of Antarctic wilderness and aesthetic values, disturbance of wildlife and changes in their behaviour. The significance of each of these aspects is not considered in the risk assessment, but likely relevant for decision-making. It should be noted that most of the aspects listed by Australia, if not all, are not tourism specific, but apply to shipping in the Antarctic in general. Also important to note is the fact that the assessment identified either ATS or IMO laws already addressing the majority of environmental aspects.

5.4.2. Ascription of responsibilities

In the previous section, the narrative of the problem and adverse consequences of ship-borne tourism in Antarctica derived from risk analyses with a focus on maritime safety and environmental protection were conducted by individual actors[54]. Individual actors are also central for responsibility to be ascribed in the ATME discourse. Responsibility ascriptions are most explicit in individual recommendations provided in submitted WPs or IPs. By comparison, it is striking that actors tend to ascribe responsibilities systematically from an Antarctic governance perspective – which is in line with the purpose of the ATME. The Madrid Protocol is often referred to and used as a justification for existing legal obligations. Actors' consciousness of the real risks of maritime incidents, seem to drive responsibility ascriptions. For example, the IHO urges that immediate actions have to be taken:

> "(…) to our understanding there is no need to spend more time and effort in justifying the allocation of more resources to improve safety to navigation and protection of the environment in Antarctica. We know the problem and the solution. What it is missing is to implement the solution, which is to increase ships' days conducting hydrographic surveys of the priority areas identified." (IP13, ATME 2009, p. 8)

Hydrographic surveys may be a partial solution but not a panacea. As demonstrated above, the issue of ship-borne tourism is much more complex than the lack of charting information. Individual recommendations included in ATCM meeting documents name several desired actions while identifying various duty-bearers responsible to take those actions. Often, similar actions fall into the responsibility of multiple actors. The following paragraphs summarise the responsibilities of individual actors and groups of actors in the ATME discourse.

ASOC lists a number of responsibilities for the ATME itself (IP2). Most of ASOC's demands refer to practical information that the ATME should contribute to the different ongoing debates and developments on the issue of Antarctic ship-borne tourism. For example, the ATME should identify standards and practices with respect to the Polar Code, introduce necessary mitigation measures, or give consideration to the development of a monitoring and information system for Antarctic vessel traffic. Other ASOC requests to the ATME are already addressed by other actors and presented in submitted meeting documents including the identification of potential environmental impact factors related to ship-borne tourism (Australia, WP8), aspects of improvable control mechanisms (New Zealand, WP7; Chile, WP13; Argentina, WP15), and applicable shipping instruments in international law and the ATS (France, WP3; Australia, WP9).

ATS institutions such as the ATCM and the CEP should be another group of duty-bearers. In response to the progress made in international law on maritime pollution approaches, Australia feels a review of Annex IV to the Madrid Protocol (Prevention of Marine Pollution) is due, which falls within the remit of the CEP (WP10). Norway, on behalf of the ICG on Issues Concerning Passenger Ships Operating in Antarctic Waters, highlights the ATCM's critical role in providing Antarctic specific information to the IMO (IP15). New Zealand believes that the ATCM should designate more Antarctic Special Protected Areas (ASPAs) and Antarctic Special Managed Areas (ASMAs) in Antarctica and propose similar actions to the IMO in terms of Particular Sensitive Sea Areas (PSSAs) (WP1). The IHO, on the other hand, would like to see the ATCM continue its collaboration efforts in inviting the IHO to its meetings and be present at IHO meetings.

[54] It should be noted that "individual actors," in this context, might also refer to a party (state or organisation) as an entity. Only rarely are individual authors mentioned in the meeting documents.

However, with respect to the task given to the ATME, it is not surprising that the majority of responsibilities for actions are addressed to the ATPs. New Zealand, to prevent future incidents in Antarctic waters, wants ATPs to scrutinise previous incidents in the Antarctic and consider lessons learned form it (WP1). ATPs are also responsible for both making vessels operating in Antarctic waters aware of limitations in adequate charting and contributing to the improvement of charting information (WP1). Regarding the latter, New Zealand responds indirectly to the IHO, who asks ATPs to re-evaluate their priorities regarding hydrographic surveying and charting and to consider establishing policies in support of hydrographic services in Antarctic waters (IP13). New Zealand also demands the approval of Measure 4 (2004) by ATCPs who have not approved the measure yet (WP1). ATPs should collaborate in exchanging information on contingency plans for emergency response and clean-up capabilities in case of environmental damages (WP5), developing a coherent contingency plan for oil spills in the Antarctic area (WP6), and considering issues related to tourist vessels flagged to ATS non-member states (WP14). In light of the Polar Code, New Zealand expects ATPs to study IMO guidelines and identify elements that could be strengthened. New Zealand also joins Norway (on behalf of the ICG) in requesting that ATPs should engage their governments to actively participate in negotiations on the development of the Polar Code at the IMO (WP5 & IP15). In the same vein, Australia suggests ATPs should coordinate such arguments presented to the IMO, which are inferred from ATCM discussions (WP9).

Some ATPs are further ascribed special responsibilities in their function as flag states; i.e., states where ships are registered and thus carry their flag). New Zealand thinks flag states should encourage tourist vessel's compliance with IMO guidelines (WP5). Both Chile and Argentina request flag states to adequately train bridge crews of vessels going to Antarctica (WP13 & WP14). Additionally, Argentina wants flag States to request their flagged vessels who are not IAATO members to report positions to RCCs on a daily basis (WP14). But states in the Southern Hemisphere with ports of departure for Antarctica are likewise called to duty. Here, once again, New Zealand claims that such port states should also promote compliance with IMO guidelines and collect any information on tourist vessels, which they provided voluntarily, for their RCCs (WP7). Since port States have the right to conduct inspections (port state control) under international law (Article 218, UCLOS) and based on existing port state control (PSC) Memoranda of Understanding (MoU) and other agreements, New Zealand thinks port states for Antarctica should "agree on a multilateral regime of proactive Port State Control" (WP1, p. 5). Collaborative systems on PSC are also called for by ASOC (IP2).

RCCs with responsibility in the Antarctic area have obviously SAR responsibilities. However, New Zealand suggests that RCCs should exchange information and share their emergency response plans to improve SAR efficiency (WP11). To this end, New Zealand further advises co-operations between RCCs and NAPs (ibid.). The latter can play a crucial role if they, too, assign to some responsibilities. COMNAP stresses how NAPs could contribute to improve maritime safety by approaching their national governments (IP10). For example, NAPs could ask their governments to emphasise to vessel operators the importance of reporting their positions regularly either directly to the RCC or using existing vessel tracking systems and remind such operators of the importance of appropriately ship crew training for Antarctic conditions. NAPs could further encourage their governments to give higher priority to charting and to include SAR information in meeting documents submitted to the IMO.

Last but not least, tourist ships – i.e., tour operators and ship crews – have responsibilities on their own to ensure safe and sustainable shipping, as the UNWTO points out (IP16). New Zealand, Chile and Argentina highlight that tourist ships should voluntarily cooperate with and assist the responsible RCCs (WP11, WP13 & WP14). If not already part of either COMNAP or IAATO's vessel-tracking schemes, tourist ships should report regularly (daily) their positions and provide further information useful to the RCC, for example, lifesaving and medical

assistance capabilities. Although not necessarily legally obligated, COMNAP argues the captain of a ship should provide early notification to RCCs of a developing situation. Generally, New Zealand states that tourist ships should follow IMO's guidelines on contingency planning for passenger ships operating in areas remote from SAR facilities.

In conclusion, duty-bearers with obligations to contribute to maritime safety in Antarctic waters and the protection of the Antarctic environment are ATS institutions (ATCM, CEP), ATPs, all flag states as well as port states that are related to Antarctic tourist vessels, RCCs with SAR responsibilities in the Antarctic, NAPs, tour operators and ship crews. ASOC also claims responsibilities of the ATME. However, there are overlaps between the different roles. For example, most ATPs but certainly all ATCPs have their own NAPs, interact in ATS institutions and, in some cases, are also flag state, port state or both. Usually, port states for ships leaving for Antarctica also maintain RCCs with SAR responsibilities in the Antarctic. Against this background, it makes sense that actors like New Zealand, Chile or Argentina emphasise responsibilities in SAR matters. Actors pointing to responsibilities of monitoring human activities in Antarctica (i.e., ship tracking) and ensuring compliance with ATS principles and rules, indicates an awareness of the weaknesses of the ATS in these concerns.[55] By addressing ATPs and ATS institutions altogether, actors representing ATPs acknowledge their own responsibilities but, at the same time, appeal to all other ATPs to do likewise.

New Zealand's major contribution to meeting documents is clearly reflected in this section. Remarkable is also the similarity between arguments from Chile and Argentina, which are almost identical, and partly also COMNAP. This point will be relevant later, when discussing discourse coalitions. The next sections focus on the general discourse during the ATME as reflected in the final report. Starting with the final recommendations to the ATCM that were agreed to at the ATME, points of conflict and coalitions within the ATME discourse can be then inferred while considering individual recommendations discussed in this section.

5.4.3. Recommendations to the ATCM

Except for topic 5 (*Vessels flagged to non-Parties*), the 2009 ship-borne tourism ATME came up with recommendations to the ATCM for all issues discussed (Figure 5.7). Regarding *Trends in ship-borne tourism in the Antarctic Treaty Area* (topic 1), there was agreement that ATPs should remain aware of the risk of maritime incidents in the Antarctic and help avoid such incidents from happening again in the future. In order to do so, the ATME recommends that ATPs should consider lessons learned from previous incidents while requesting additional information from parties that were involved in the incident in one way or the other. Further agreement could be found on the idea of enhanced inspections of tourist vessels travelling to Antarctica. The ATME recommends that ATPs develop a checklist specifically for this purpose to guarantee compliance with the ATS, particularly the Antarctic Treaty and the Madrid Protocol. There was also agreement that a strategic plan was needed for the management of Antarctic tourist sites. However, the ATME could not find agreement on the focus, scope or strategic goal for such a plan. Instead, it refers to the tourism study conducted by the CEP as a useful piece of information to consider in further discussions on a strategic plan.

In terms of the *Developments in the IMO relating to ship-borne tourism in the Antarctic Treaty Area* (topic 2), the main focus was on the negotiations towards a mandatory Polar Code – which is very obvious considering the ATME established an informal contact group specifically to discuss this issue. The ATCPs had already expressed their desire for the IMO to

[55] The framework analysis of the ATS in Chapter 3 identified the monitoring of human activity in the Antarctic Treaty area regarding compliance with the ATS as one of the management weaknesses of the system.

develop mandatory regulations for Antarctic shipping through Resolution 8 (2009) at the ATCM XXXII. On this basis, the ATME recommends studying the current discourse on the Polar Code for ATPs to be properly prepared at the negotiations within both the IMO and ATS fora.

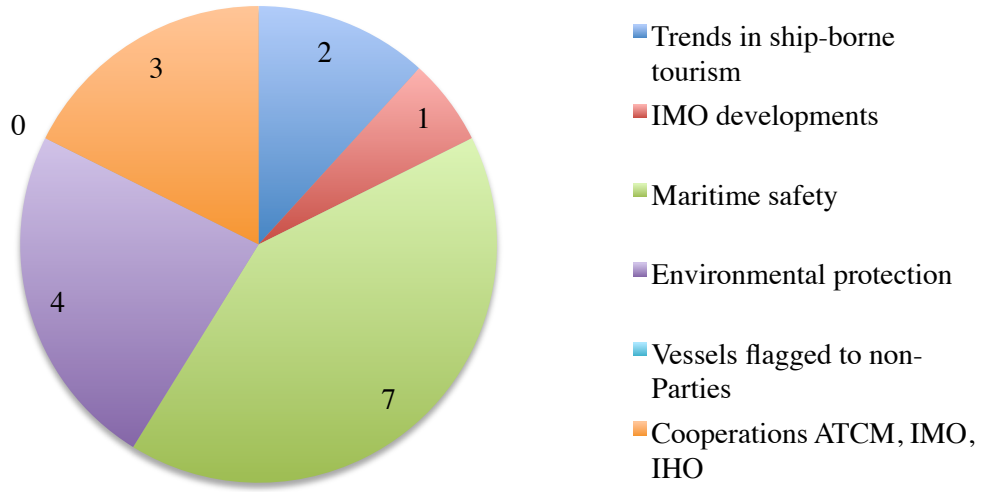

Figure 5.7: Number of ATME Recommendations to the ATCM per topic – source: 2009 ATME report

The ATME provided most recommendations on the issue of *Maritime Safety* (topic 3) (Figure 5.7), and here particularly on SAR. In recognising the high value of sea ice observation and information system services the ATME recommends ATPs to continue contributing and improving such services for the Antarctic. Highlighting the importance of charting, the ATME recommends to ATPs to continue contributing to hydrographic surveying. At the same time, ATPs should inform vessels intending to travel to Antarctica about the fact that many areas have not been adequately surveyed yet. In order to ensure Antarctic tourism vessels meet international standards and requirements, the ATME recommends ATPs to apply proactively the existing PSC regime. With regard to maritime SAR in the Antarctic Treaty Area, there was agreement that the five RCCs with responsibility in the Antarctic should coordinate and share plans not just with themselves but also with NAPs and IAATO. The ATME further recommends requiring appropriate training of all crewmembers on ships navigating in Antarctic waters while referring to Chapter 14 (Crewing) of the IMO's Guidelines for Ships Operating in Polar Waters. Based on a discussion about the value of tourist ships as a source of information to RCCs, the ATME recommends to ATPs to encourage tourist and similar ships that are not part of existing monitoring schemes to communicate with RCCs and report their positions. In this context, the ATME further emphasises the importance of contingency planning in line with IMO guidelines and in accordance with Resolution 6 (2005). Since numerous ATCPs had not (and still have not) approved Measure 4 (2004), the ATME recommends ATPs to do so as a matter of priority.

Towards the *Protection of the Antarctic Environment* (topic 4), the ATME found agreement in that management decision should be based on the best information available. It recommends that the ATCM Operations Working Group and the CEP explores how to assess environmental impacts related to ship-borne tourism. This information should be then considered in their discussions on the management of ship-born tourism as well as shipping in general. In view of the challenges the CEP experienced in collecting data for their tourism study, the ATME recommends that all parties involved in non-governmental activities in the Antarctic should

support future studies by providing relevant data and information. The ATME also agreed on the usefulness of exchanging information regarding contingency plans, which include commitments to emergency response action against environmental impacts in Antarctica and recommends that ATPs should support such exchange of information. Aware of the disastrous environmental consequences of large-scale marine oil spills, the ATME recommends to the ATCM to develop appropriate guidelines on how to respond to environmental pollution at a larger scale in Antarctica.

It was agreed at the ATME that *Cooperations between the ATCM and the IMO and the IHO* (topic 6) should continue by participation in each other's policy meetings. Regarding the increasing importance of the relationship between the ATME and the IMO, it was further agreed that in some circumstances it might be valuable for ATPs to also coordinate among themselves when discussing Antarctic-related matters within the IMO. Although the link to the development of the Polar Code is not explicit in this recommendation, the context in the final report suggests a connection. The importance of the ATCM-IMO relationship is again underlined with the ATME's recommendation to the ATCM to consider ways how to enhance cooperative working relationships between the two institutions. The ATME also recommends the ATCM and IHO to mutually support each other.

Overall, all recommendations follow the premise of best-possible informed decision-making, considering existing information and available resources, but also making efforts to update and expand knowledge since both Antarctica's physical conditions and human activities in the Antarctic area are dynamic. Valuable information on sea ice, hydrography (i.e., nautical charts), marine traffic (i.e., positions of vessels), vessel's contingency plan and insurance as well as experiences from previous incidents is needed to support the management of ship-based tourism in the Antarctic. The communication and exchange of information between parties involved is stressed repeatedly. Ensuring maritime safety and environmental protection in Antarctica is a team effort and requires all parties to take responsibility. Consistency in actions and compliance are crucial for the management of human activities in Antarctica. The ATME adheres closely to ATS regulations and international law. Its recommendations use the diplomatic language of ATCMs but do not provide concrete proposals for solutions; they merely offer principles under what conditions solutions should be found. Compared to individual recommendations expressed in meeting documents, New Zealand's recommendations especially echo in the ATME Recommendations to the ATCM in the final report – in some cases, even the exact wording is adopted.

5.4.4. Points of conflict and coalitions

All ATME recommendations were either endorsed or strongly supported by the subsequent ATCM XXXIII in 2010 – except for Recommendation 6, addressing PSC for passenger vessels. The final report to the ATCM XXXIII documents some extensive discussions on this issue, which finally led to Resolution 7 (2010) on the "Enhancement of port state control for passenger vessels bound for the Antarctic Treaty area." A similar scenario is already observable in the final report to the 2009 ATME. Actors who support the enhancement of PSC in ATME meeting documents are New Zealand, especially New Zealand's maritime authority and ASOC. Interestingly enough, neither Chile nor Argentina are pushing for PSC in their submitted papers to the ATME, but they also do not speak against it. Chile and Argentine are the busiest port states for Antarctic tourism and all maritime incidents in the Antarctic that were mentioned in the ATME discourse occurred in their SAR responsibility areas. Chile and Argentina's views on PSC emerge neither in the ATME meeting documents nor the final report. Argentina is only mentioned in the final report for referring to existing provisions on PSC in international law (i.e., UNCLOS).

This comment follows a statement by the United States, as documented in the final report of the 2009 ATME, on how PSC expands sovereign rights of port states, which basically gives more powers for certain states. The United States, itself, however, is no port state to vessels departing directly to Antarctica. The extension of power is justified by the port states' responsibility to enhance marine safety and protect the environment. Although acknowledging this fact, the United States points out that the primary responsibility for vessels remains with the flag states.[56] Proposals to the strengthen PSC in the Southern Hemisphere have to be specific, the United States claims. There are some further discussions on this issue included the final report of the 2009 ATME, in which the meeting recognises the fact that PSC not only applies to tourism vessels, but also considers its potential value as a supplement mechanism of management. Very carefully, the meeting notes that "maybe" there is need to strengthen PSC, but with the objection that such control mechanisms must be based on existing international regimes.

Although the final report to the 2009 ATME gives only limited insight into the debates at the ATME, it is clear that there are concerns related to a strengthening of PSC, which seem to bother some actors more than others. The report to the ATCM XXXIII, then, documents a follow-up discussion on the ATME recommendation. Here, actors of the discourse consistently emphasise existing PSC – including New Zealand who, in the previous ATME, had proposed new agreements on that matter. The United States, on the other hand, sticks to its argument that the primary responsibility is with the flag states, but that a combination of flag state and existing PSC mechanisms would be beneficial. Argentina comments that PSC should be expanded to those port states vessel visit prior to the ports where they finally depart for Antarctica. This may be an indication of Argentina's reticence in the ATME discourse. Port state inspections certainly add considerable workload, particularly for busy Antarctic gateways such as Argentina and Chile.

The ATCM XXXIII report also includes statements from other actors that hint to another issue related to PSC, namely the question of consistency and applicability. The United Kingdom, Chile and Sweden express the desire for consistent control mechanisms for all vessels bound for Antarctica, but China argues that government vessels should be excluded from PSC. Both the United States and Japan agree with China, emphasising sovereign immune vessels, while Argentina and Russia see difficulties in applying PSC to all vessels. Uruguay, on the other hand, argues that all vessels should be urged to go through PSC. Resolution 7 (2010) finally recommends that ATPs, in general terms, should proactively apply PSC, but makes this demand explicit to passenger vessels bound for Antarctica and avoids any generalisation at this end.

Beside PSC, there are a few other points where more intense discussions with differing opinions become apparent in the 2009 ATME final report. There is, for example, the discussion on the issue of vessel anchoring, which was mentioned by Australia (WP8) and highlighted by New Zealand (WP1) as an aspect to consider regarding potential adverse environmental impacts. Anchoring, however, is emphasised by some other actors, who are not specifically named in the report, as an important safety factor – while noting that iceberg scouring has the most significant impact on the sea floor environment. In this example, the two basic values in the ATME discourse human safety and environmental protection openly clash. Another example is the discussion on the Madrid Protocol's Annex V (Area Protection and Management). New Zealand's proposal to ask the IMO to designate the Antarctic Treaty Area

[56] Indeed, inspections, what port state control essentially is, were "originally intended to be a back up for flag State implementation" but then turned out to be an effective tool in its own right. (Cited from http://www.imo.org/OurWork/Safety/Implementation/Pages/PortStateControl.aspx - accessed: 18/10/2014)

as a PSSA has some supporters but others argue the proposal should be considered by the ATCM first.[57] Here, it is the issue of responsibility and jurisdiction that causes the discord.

In terms of coalitions, the most obvious discourse coalition within the ATME is represented by the United States and IAATO in submitting a co-authored meeting document on ship-born tourism traffic pattern. Although, the paper is claiming not to reflect the view of the United States government, the United States seem to be closely linked to Antarctic tourism. Considering the fact that the United States has the largest number of tour operators active in the Antarctic based within its borders, and that the majority (usually around a third) of all tourists visiting Antarctica per year are citizens of the United States, the United States plays a significant part in Antarctic tourism. This high presence on the Antarctic tourism market is indeed recognised by the United States government, who acknowledges its "major interest" in Antarctic tourism.[58]

COMNAP does not evidently share argumentation strategies with IAATO, but highlights benefits from co-operations with IAATO and acknowledges IAATO's vessel tracking scheme as a useful information system. A more obvious discourse coalition, without directly referring to each other, is formed by Chile and Argentina. In comparison, Chile and Argentina put forward very much the same arguments and recommendations. COMNAP joins Chile's and Argentina's discourse coalition on principle. Together, these three actors stress the importance of co-operation between RCCs and the communication of vessels for SAR operations. In this sense, a connection to the SAR workshops prior to the ATME is very likely.

5.5. Change in the discourse

In the broader ATS shipping-tourism discourse, the mandatory Polar Code is perhaps the most significant change. Between the shipping ATME in 2000 and the ship-borne tourism ATME in 2009, the language on shipping regulations for the Antarctic changed drastically from non-mandatory guidelines to a mandatory shipping code. This course in the ATS discourse is parallel to developments of a similar discourse at the IMO. In fact, it is evident that the discourses within institutions of the two regimes are interconnected.

In retrospect, IMO shipping regulations for both polar regions were originally intended to be of mandatory nature (IP40, ATCM XXV). Plans changed due to the concerns of IMO member states and the subject of the negotiations turned into non-mandatory, hortatory shipping guidelines. All this happened in the late 1990s where tourism in Antarctica was already booming, but before the market for large cruise ships in Antarctica started to grow (Chapter 3, Figure 3.8). Actors at the 2000 ATME followed IMO's maxim of voluntary guidelines, which implies a level of trust towards vessels operating in polar waters by leaving it to them to act responsible. At the 2004 ATME, actors acknowledged the self-regulatory capacities of the tourism industry in Antarctica, notably IAATO, but also recognised some management and regulation shortages. Although ATPs insisted on their primary responsibility for regulating tourism activities in Antarctica, they were aware of the ATS's limitation in jurisdiction.

At this point, IAATO had a good position in offering ATPs self-regulated and responsible Antarctic tourism (Beck, P. J., 1994). The peaceful use of Antarctica, collaboration and information exchange are all principles manifested in the Antarctic Treaty that are supported by IAATO. IAATO also promotes the protection of the Antarctic environment, which is key to the Madrid Protocol. However, IAATO's influence on tourism is limited as only IAATO

[57] Again, individual actors are not identified in the 2009 ATME final report.
[58] Quoted from the United States Department of State website: http://www.state.gov/e/oes/ocns/opa/antartictourism/ (accessed: 27/11/2014)

member tour operators voluntarily commit themselves to IAATO standards. IAATO has little influence on developments in the market. For a more universal approach, other international bodies such as the IMO for ship-based tourism[59] are necessary.

This cooperation of competencies between ATCMs, IAATO and the IMO were in line with ATS principles. Issues related to large cruise ships, were approached from all three stakeholder groups quite effectively. However, as mentioned above, dynamics changed with the *M/S Explorer* sinking. What followed was a strong focus on the authority of the IMO. A comprehensive and mandatory code for ships operating in polar waters that covers matters of design, construction, equipment, operations, training, SAR and environmental protection signifies the basis and critical requirement to prevent maritime incidents with potential adverse environmental impacts. As a legal instrument, it can represent an appropriate tool for governments to enforce collective actions, which is desired by ATPs.[60] Yet, enhanced law enforcement does not necessarily have to conflict with tourism self-regulation by the industry.

In this context, a report on a meeting organised by IAATO in March 2008, only a few months after the *M/S Explorer* incident, is interesting, which was presented to the ATCM XXXI (IP19). The meeting included a group of experts representing some of the ATCPs,[61] the IAATO Secretariat and member operators, ASOC and SCAR, in addition to individual experts – an alternative ATME in a way. This was in fact the second meeting IAATO organised apart from formal ATS meetings and before a tourism-related ATME. IAATO did the same in 2002, before the 2004 ATME. What is interesting in these kind of meetings is their different framework and setting in combination with the resulting practical argumentation on an integrated system to regulate tourism presented in the reports. Both tourism expert meetings were chaired by R. Tucker Scully, retired Head of the United States Delegation to ATCMs. In the 2002 report, a strategic approach to tourism is advocated with reference to difficulties in developing an effective regulatory framework to manage Antarctic tourism. Six years later, the second expert report again argues for a strategic approach, suggesting an integrated system of binding regulations, industry internal common standards and collaborative management. IAATO is seen as an important partner in a comprehensive regulation and management scheme for Antarctic tourism while highlighting the potential synergies from combining governmental regulations and self-regulation by the industry.

The post-ATME discourse on ship-borne tourism at ATCMs can be divided into discussions on general safety and operational matters, and on tourism and non-governmental matters – though overlaps occur. Some combined discourse, specifically on the challenge of yacht tourism, continues. The development of the Polar Code within the IMO is integrated in the ATCM discourse on safety and operations. With Resolution 5 (2010) agreed at ATCM XXXIII, ATPs are encouraged to co-ordinate their proposals to the IMO. Also, continued discussions on the coordination and cooperation with regard to SAR and hydrographic surveying and charting are incorporated in the ATCM safety and operations discourse. However, all three issues are discussed separately under different agenda items in the ATCMs in parallel rather than jointly. Particularly SAR gained increased attention in the ATCM discourse.[62]

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[59] As mentioned earlier, ship-borne tourism is just one form of Antarctic tourism. There is also regular air- and land-based tourism in Antarctica.

[60] Meanwhile, the IMO adopted the Polar Code and associated amendments to the Convention of the Safety of Life at Sea (SOLAS) to make the Polar Code mandatory in November 2014, which they call an "historic milestone." See IMO press release: http://www.imo.org/MediaCentre/HotTopics/polar/Pages/default.aspx (accessed: 26/11/2014)

[61] Including Argentina, Australia, France, Germany, the Netherlands, Norway, Sweden, the United Kingdom and the United States (IP19, ATCM XXXI)

[62] For example, at the ATCM XXXVI (2013) a Special WG on SAR was established, following the proposal of the United States (WP25, ATCM XXXVI).

Considering all forms of Antarctic tourism, the ATCM discourse takes a more strategic approach with the intention of proactive management. There is a general reform sentiment regarding Antarctic tourism noticeable in the ATCM discourse. Before the 2009 ATME, ATCPs had already agreed on *General Principles for Antarctic Tourism* (Resolution 7 (2009)) and initiated a study on Antarctic tourism to be conducted by the CEP (WP12, CEP XII). Results of the latter were presented to the ATCM XXXV (IP33, submitted by NZ), highlighting numerous points with room for improvement of management capacities (e.g., a complete and centralised database, a suitable methodology to distinguish particularly sensitive tourist sites, environmental impact research studies with specific focus on Antarctic tourism as well as future scenarios, a systematic monitoring scheme for Antarctic tourism activities and impacts at tourism sites, and assessments of the effectiveness and the use of management tools in place). At the ATCM XXXIII (2010), ATPs established an ICG on the Supervision of Antarctic Tourism with focus on inspections and observation of tourism and non-governmental activities in Antarctica. A year later, at the ATCM XXXIV, the ICG on Outstanding Questions on Antarctic Tourism was established, which was tasked, inter alia, to identify priority policy questions around safety and environmental protection. Worth mentioning is also Decision 4 (2012), by which ATCPs require ATPs to make use of especially for the ATS developed Electronic Information Exchange System (EIES).

5.6. Values underlying the discourse

Values implicit in the documents and underlying the discourse on ship-borne tourism in Antarctica can be identified in the discourses within the ATCMs preceding the 2009 ATME. In particular, reactions to the sinking of the *M/S Explorer* clearly include value judgements in describing the incident as a "major tragedy." Concerns about future incidents with the potential for "environmental and humanitarian disaster" confirm the awareness of adverse consequences for both human beings and the Antarctic environment. On this basis, two major values are underlined: human safety in Antarctica and the protection of the Antarctic environment. These two values are driving the ship-borne tourism discourse; they are included in the 2009 ATME agenda (items 3 and 4) and were addressed the most often in meeting documents submitted to the ATME.

The protection of the Antarctic environment can be interpreted as a means for the value of sound Antarctic nature. Repeated concerns about negative anthropogenic impacts (through maritime incidents) on Antarctica and the Southern Ocean, including Antarctic terrestrial and maritime ecosystems, indicate a caring for Antarctic nature and its wellbeing. In view of Schwartz's value theories, such behaviour can be attributed to the basic human values *Benevolence*[63] and *Universalism*,[64] and to the cultural value orientation *Harmony*. The latter emphasises the "fitting into the social and natural world, accepting, preserving and appreciating the way things are" (Schwartz, 2011b, p. 472; see also Chapter 1). As such, changes in the Antarctic nature are undesirable.

The safety of human life is particularly underlined in efforts to improve SAR in the Antarctic area. Both the Antarctic nature and the safety of human life are valued in their own right. There is no talk in the meeting documents about compromising either the protection of the Antarctic environment or the safety of human life – except for the discussion about anchoring, which

[63] In Schwartz's refined theory of basic human values, *Benevolence* occurs either as a form of *Dependability* or *Caring* for others (Chapter 1). In the context of the Antarctic nature, Benevolence in form of Caring applies.
[64] Again, in Schwartz's refined theory of basic human values, *Universalism* is specified in three different manifestations: *Concern*, *Nature* and *Tolerance* (Chapter 1). In the context of the Antarctic nature, Universalism to Nature applies.

was identified as a fundamental conflict between values. Consequently, there is, in principle, potential for conflict between the two driving values of the ship-borne tourism discourse.

The key issue in the 2009 ATME discourse is the possibility of maritime incidents and their potential impacts, which put both human safety and environmental protection at risk. The issue is a management issue addressing the core question; how can maritime incidents be prevented in order to ensure human safety and environmental protection? Therefore, the 2009 ATME discourse is further driven by the aspect of control, which can be attributed to Schwartz's basic human value *Power*.[65] Power, in the context of the discourse of Antarctic ship-borne tourism, becomes a means for the two ends of human safety and environmental protection. However, in the context of the debates around PSC, potential conflicts between actors regarding the boundaries of power become apparent.

Power, again, is related to a number of other values expressed in the 2009 ATME discourse, such as the value of information or knowledge and compliance with rules. The value of information arises from the need for enhanced charting and sea ice information, but also communication between tourism vessels, RCCs and NAPs as well as vessel tracking systems. It relates to Hofstede's cultural dimension of *Uncertainty Avoidance*.[66] In the case of the 2009 ATME discourse, the level of Uncertainty Avoidance can be estimated to be high, which is related to perceived high risk of maritime incidents. The value of compliance with rules can be attributed to Schwartz's basic human value *Conformity*[67] in the context of rules. This value is particularly apparent in the debate around the Polar Code and the expressed desire for mandatory regulations.

Finally, the emphasis on co-operations of various combinations – between ATPs, RCCs, IAATO, NAPs, ATCMs, the IMO and the IHO – can be interpreted as relating to Schwartz's basic human value *Achievement*.[68] Efficient and effective collaboration among parties promotes successful operations.

5.7. Summary

The 2009 ATME on ship-borne tourism was a well-prepared performance, embedded in the broader ATCM discourses on shipping and tourism in the Antarctic, which were united in the 2009 ATME. Participating actors in the ATME discourse represented the key stakeholders and players involved in negotiations on Antarctic tourism and shipping regulation including the industry and environmental NGOs. China did not emerge as an active actor in the documented ATME discourse, but its presence at the ATME can be seen in its role as a rising Asian polar power (Brady, 2013). The discourse has a strong focus on maritime safety and operations. There is a great deal of expertise in shipping and SAR operations, Antarctic operations, international affairs and negotiations available in the ATME discourse. Experts' dominance from national maritime authorities, NAPs as well as politicians and diplomats clearly shaped the discourse. Particularly the host ATCP, New Zealand, invested a lot of efforts in the ATME, which is evident in the discourse. However, final recommendations to the ATCM do not reflect the urgency for action that emerges from the preceding ATCM discourse and ATME meeting documents. Rather, the ATME Recommendations in the final report reproduce the diplomatic language and practices of ATCMs, advocating informed decision-making.

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[65] Schwartz defines Power by the motivational goal of control over people and resources (Chapter 1).
[66] The cultural dimension of Uncertainty Avoidance refers to the stress level an unknown future causes in a society (Chapter 1).
[67] In Schwartz's revised basic human value theory, he distinguished Conformity between Rule Conformity and Interpersonal Conformity. The definition of conformity matches exactly with compliance with rules, laws and formal obligations (Chapter 1).
[68] The value Achievement is defined by its motivational goal of success (Chapter 1)

Among values inherent in the discourse of ship-borne tourism, human safety in Antarctica, and the protection of the Antarctic environment represent the two main ends in the ATME discourse. There is awareness of existing risks for both ends related to increased ship-borne tourism in Antarctica that is associated with an increased risk of maritime incidents. The issue of increased ship traffic and risk of accidents is not necessarily tourism-specific but applies to Antarctic shipping in general. In addition to the risk of maritime incidents with adverse consequences for human safety in Antarctica and the Antarctic environment, the issue is further assigned to a lack of adequate regulations and limited jurisdictional powers of the ATS. Therefore, the issue is not solely a management problem, but also a governance problem. Control is critical to reduce risks. In consideration of deliberations about increase of control over risks, patterns in recommended actions can be summarised in the enhancement of co-operations, communication, knowledge, inspections and regulations. These aspects can be attributed to the basic human values and cultural value orientations introduced in Chapter 1, most notably Schwartz's value theories and Hofstede's cultural dimensions. This relationship between the patterns in the recommended actions to value theories and cultural dimensions confirm that values are underlying the Antarctic ship-borne tourism discourse.

Some conflicts in the 2009 ATME discourse are apparent. In particular, the debates around PSC indicate differing viewpoints between actors of the discourse. A conflict between the safety of human life and environmental protection in the Antarctic occurred in discussions on anchoring, which presented a conflict between values. At first sight, a change in value emphases seems obvious in the broader Antarctic ship-borne tourism discourse. There is a drastic turn from voluntary guidelines to mandatory regulations for navigation in Antarctic waters, which occurred in the same time period as the sinking of the *M/S Explorer*. However, considering an earlier ATCM discourse on shipping, it becomes clear that the idea of mandatory shipping regulations for polar regions circulated for a while, and that both discourses and decisions within the ATS are oriented towards, and influenced by, global policy discourses and decisions.

6. Case Study II: Climate Change and Implications for Antarctic Management and Governance

As in Case Study I, the 2010 ATME on Climate Change and Implications for Antarctic Management and Governance was based on an ATCM Decision. Decision 1 (2009) requests ATPs to convene an ATME for the examination of the following five topics relevant to the issue of climate change in Antarctica:

1. key scientific aspects of climate change and the consequences of such change to the Antarctic terrestrial and marine environment;
2. the implications of climate change for the management of Antarctic activities;
3. the need for monitoring, scenario planning and risk assessments;
4. outcomes of the Copenhagen negotiations relevant for the Antarctic, and Antarctica's relevance for international climate negotiations;
5. the need for further consideration of any of the above issues and ways in which this can be achieved.

Decision 1 (2009) further accepts the offer of the Norwegian Government to host the ATME in Norway in 2010 and invites Non-Consultative Parties, SCAR, COMNAP, IAATO, ASOC, IUCN, the IMO, the WMO, the IPCC and UNEP to send their experts to the meeting alongside experts from ATCPs. Finally, the ATME is requested to send its report to the ATCM XXXIII for consideration.

The specifications set out in Decision 1 (2009) build the framework for the ATME, which in this case imply a basic analysis of the nature of the issue and its implications. Points for discussion are very broad. In particular, topic 5 is vague and suggests a climate change discourse that is still in its infancy – at least in the framework of the ATS. However, there is also a reference to the global climate change discourse, and for that reason, some key events outside the ATS are included in the next section to provide some broader context around the 2010 ATME.

6.1. Background

Climate change has been appearing regularly on the ATCM agenda since 2011, following the 2010 ATME on climate change. Adding climate change as a separate item in the ATCM agenda was in fact one of the 2010 ATME Recommendations to the ATCM XXXIII in 2010.[69] However, climate change had been a topic for discussion before the 2010 ATME and had been included in the ATCM discourse under a range of relevant agenda items. From 2007 to 2010, "climate-related research" was added as a supplement to agenda item *Science Issues*. The first meeting document classified as climate-change-related is dated to 1996, submitted to the ATCM XX (IP69). Two more meeting documents categorised under the topic climate change appeared at the ATCM XXVI in 2003 (IP101, IP102). All three documents were submitted by SCAR, who played a key role in pushing the issue of climate change in the ATS forum.

At the ATCM XXXI in 2008, Norway and the United Kingdom together proposed the expert meeting in a jointly submitted meeting document (WP35, ATCM XXXI). Here, Norway and the United Kingdom explain the need to convene an ATME by increasing global climate change impacts and the important role the polar regions play in this process of change. Therefore, ATPs should consider impacts of climate change on the governance and

[69] Before the 2010 ATME, Norway had already suggested adding the issue of climate change as a new item on ATCM agendas in its meeting document WP28 submitted to the ATCM XXX.

management of Antarctica on the basis of climate change science reports provided by SCAR and other relevant sources.

The mentioned SCAR report referred to the *Antarctic Climate Change and the Environments* (ACCE) report, an important document for the 2010 ATME, as will be seen in the discussion of the 2010 ATME discourse. The ACCE provided a review of existing scientific knowledge on Antarctic climate, its influence on Antarctic terrestrial and maritime ecosystems, and future scenarios for Antarctic climate changes. A major focus of the assessment was to put Antarctica in a global context. SCAR research programmes involved in conducting the review included Antarctica in the Global Climate System (AGCS), Antarctic Climate Evolution (ACE), and Evolution and Biodiversity in the Antarctic (EBA) programme. Inspired by Arctic Climate Impact Assessment (ACIA), the SCAR Executive Committee decided to undertake the ACCE assessment in the same year the ACIA report was published in 2005 (Turner et al., 2009).

At the ATCM XXIX in 2006, SCAR officially informed ATPs about its plans for the ACCE project (IP89). Since then SCAR regularly submits meeting documents that address climate change to ATCMs and provides updates on the ACCE.[70] From the beginning, the ACCE was meant to complement the ACIA (IP89, ATCM XXIX; see also Turner et al., 2009). Similar to the ACIA, a key objective was to provide guidance for ATCM decision-makers. Aside from policy-makers, other focus groups for the ACCE included the scientific community and the public. The ACCE was considered a contribution to the fourth International Polar Year (IPY) 2007/2008.[71] In 2006 and 2007 SCAR dedicated its annual lectures at ATCMs to climate change, highlighting Antarctica's significant role as an integral part of the Earth System but also the implications of climate change for Antarctica. The final ACCE report was published in November 2009. Beside the comprehensive ACCE report including an executive summary, following the IPCC model, the editorial board summarised ten key messages for policy-makers.

Other relevant reports on climate change are the IPCC reports. The IPCC is probably the most influential body for climate change science on an international level. Its reports support global climate change negotiations and are frequently cited in the literature as well as the public media. The Fourth Assessment Report of the IPCC, published in 2007, fell into the first development phase of the ACCE and was considered in the progress of developing the latter. The IPCC assigns a high probability to human activity as a significant source for increased concentrations of greenhouse gases in the atmosphere and causes the long-term increase of the global average temperature. It further infers that this trend will continue if societies continue to emit greenhouse gases.[72] Particularly critical is the burning of fossil fuels, which is the main energy source for modern societies. Effects of climate change have been observed in the climate, weather, ice and the oceans.

The IPCC came under fire in 2009 through a scandal that raised media and public attention worldwide and not only adversely affected the reputation of the IPCC, but also heated up the public and political climate change debate. What has become known as the "Climategate" affair refers to over one thousand private emails and documents associated with the Climate Research Unit of the University of East Anglia, United Kingdom, that were hacked and publicly released only two weeks before the 2009 climate change summit in Copenhagen, triggering a public controversy. Climate change sceptics suggested scientists had manipulated

[70] SCAR addressed climate change and explicitly mentions climate change in ATCM meeting documents also before 2006 (e.g., IP102, ATCM XXVI).

[71] It should be noted that the IPY itself has gained considerable media attention internationally and implemented new climate change research projects in both polar regions.

[72] It should be noted that the IPCC also points out that, because some greenhouse gases (particularly CO_2) stay in the atmosphere for a long time, concentrations of greenhouse gases would still increase even if societies stopped emissions immediately (IPCC, 2013).

data, abused the peer-review system and suppressed critics (Carrington, 2011; Mann, 2012). As a response, the transparency and accountability of the IPCC, but also the authority and trust of the scientists as such, were questioned (Beck, S., 2012; Hmielowski et al., 2013; Hulme, 2013).

The Copenhagen negotiations, which are also mentioned in Decision 1 (2009) as one of the issues to discuss at the 2010 ATME, refer to the fifteenth Conference of the Parties (COP) of the UN Framework Convention on Climate Change (UNFCCC), which was held in Copenhagen, Denmark, from 7-18 December 2009. The UNFCCC was an important milestone in international negotiations on collective actions to stabilize human-induced greenhouse gas concentrations in the atmosphere. The UNFCCC was adopted in 1992 at the Earth Summit in Rio de Janeiro and entered into force in 1994. Since then, parties of the convention are meeting annually to negotiate the implementation of the UNFCCC. The Kyoto Protocol, which resulted from the third COP in Kyoto, Japan, in 1997 was an important attempt for legally binding obligations to meet the UNFCCC's objectives – at least to a certain extent.[73] It entered into force in 2005 and expired in 2012.

With this expiry date in view, expectations were high for an enhanced succeeding protocol to come out of the Copenhagen negotiations (COP 15). One of the reasons for the optimism of successful negotiations was the fact that Barack Obama had been elected as president of the United States in 2008. Obama, contrary to his predecessor George W. Bush, promised to address climate change as a matter of priority (Pielke Jr., 2010). Accordingly, Obama also engaged in the Copenhagen negotiations.[74] COP 15 gained a lot of media attention, particularly in Europe (Anderson, 2011; Boykoff, 2011). It was one of the largest summits in history held outside UN headquarters with attendees of the highest political level – including one hundred and nineteen monarchs, presidents and prime ministers (Dimitrov, 2010). COP 15 was also in the focus of SCAR and the ACCE assessment, which was published only a month before the Copenhagen conference. The ACCE report was distributed to the fifty-three national representatives at COP 15 (Turner et al., 2013). Despite the high expectations for the conference, however, parties could not reach agreement on a new protocol to replace the Kyoto Protocol. Instead, COP 15 produced the Copenhagen Accord, which, *inter alia*, determined a limit of two degrees Celsius of global average temperature increase compared to pre-industrial levels.[75]

6.2. Setting and staging of the 2010 ATME

The climate change ATME was held in Solvær on Lofoten Island, which lies within the Arctic Circle. Solvær had been also the location of the April 2008 Senior Arctic Officials (SAO) meeting of the Arctic Council,[76] the Arctic equivalent to the ATCM, and, therefore, appears as a popular place for official polar policy meetings. With only minor changes, the topics of Decision 1 (2009) were integrated into the meeting's agenda, which was adopted as follows: (1) election of officers, (2) adoption of the agenda, (3) key scientific aspects, (4) key consequences of such change to the Antarctic marine and terrestrial environment, (5)

[73] The declared ultimate objective of the UNFCCC is the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (Article 2, UNFCCC). The Kyoto Protocol provided that high-income countries reduce "their overall emissions (…) by at least 5 per cent below 1990 levels in the commitment period 2008 to 2012" (Article 3, Kyoto Protocol). Developing countries were not bound to this obligation, but could voluntarily commit to the reduction of their emissions. Overall, the Kyoto Protocol presents an important step, but does not fulfill UNFCCC's objective fully.
[74] See recorded Obama speech at the UN climate change summit in Copenhagen (22 September 2009): http://youtu.be/WYga2qRnY2w (accessed: 03/11/2014)
[75] See http://unfccc.int/meetings/copenhagen_dec_2009/meeting/6295.php (accessed: 03/11/2014)
[76] See http://www.arctic-council.org/index.php/en/events/meetings-overview/all-meetings (assessed: 03/11/2014)

implication of such consequences to management of Antarctic activities, (6) the need for monitoring, scenario planning and risk assessment, (7) outcomes of the Copenhagen negotiations relevant to the Antarctic, (8) the need for further consideration of any issues and manners in which this can be achieved, (9) proposals and report for ATCM XXXIII.

Agenda items 3-6 reflect the rationale of the methodological model introduced in Chapter 4 and are used for this discourse analysis: identification and characterisation of the issue from a scientific point of view followed by the consideration of adverse consequences and the ascription of responsibilities for actions. This structure, again, points to an approach to the issue of climate change that focuses on the vary basics of the issue. Similarly to the 2009 ATME discourse, two types of consequences can be distinguished: consequences for Antarctic environments including ecosystems, on the one hand, and consequences for human activity in Antarctica or the management of such activities, on the other. Consequences for the management of human activities are perceived as resulting from consequences of climate change for Antarctic environments. The schedule of 2010 ATME (SP1) indicates the meeting was split into two working groups on the second day of the 2010 ATME. One working group was tasked to focus on management issues related to nature conservation and protection, and the other to focus on management issues related to human activity.

The science focus of the 2010 ATME is reflected by the composition of the meeting's chairs. Jan-Gunnar Winther, director of the host institute the Norwegian Polar Institute, Norway's national institute for polar research and home of its national Antarctic programme, and David Clary, chief scientific advisor to the United Kingdom Foreign and Commonwealth Office, co-chaired the 2010 ATME. The meeting further elected chairs for the two working groups. Neil Gilbert, at the time chair of the CEP and representing Antarctica New Zealand, was elected chair of the working group on nature conservation, and Colin Summerhayes, at the time executive director of SCAR, was elected chair of the working group on human activities.

The meeting organisers had set up a website with practical information and material as preparation for the 2010 ATME.[77] Preparation materials included climate change-related meeting documents submitted between ATCM XXIX (2006) and ATCM XXXII (2009), the last ATCM before the 2010 ATME.[78] A total of eighteen ATCM meeting documents were put forward as background for the discussions at the climate change ATME. This encompasses almost every meeting document under the category "Climate Change" submitted to an ATCM in the selected time frame. In comparison, background documents can be characterised as attempts to introduce the global climate change discourse into the institution of the ATCM. Figure 6.1 gives an overview on the authorship of the background documents, with a third of all documents provided by SCAR. A considerable contribution was also provided by the United Kingdom, which had been particularly engaged in the production of the ACCE with half of the editorial board coming from the British Antarctic Survey.

[77] http://atme2010.npolar.no/en/ – Norway did the same for the previous ATME it hosted in 2004 (on Tourism and Non-governmental Activities).

[78] It should be noted that this time frame corresponds with the time when SCAR started working on the ACCE and reporting regularly at ATCMs on its progress.

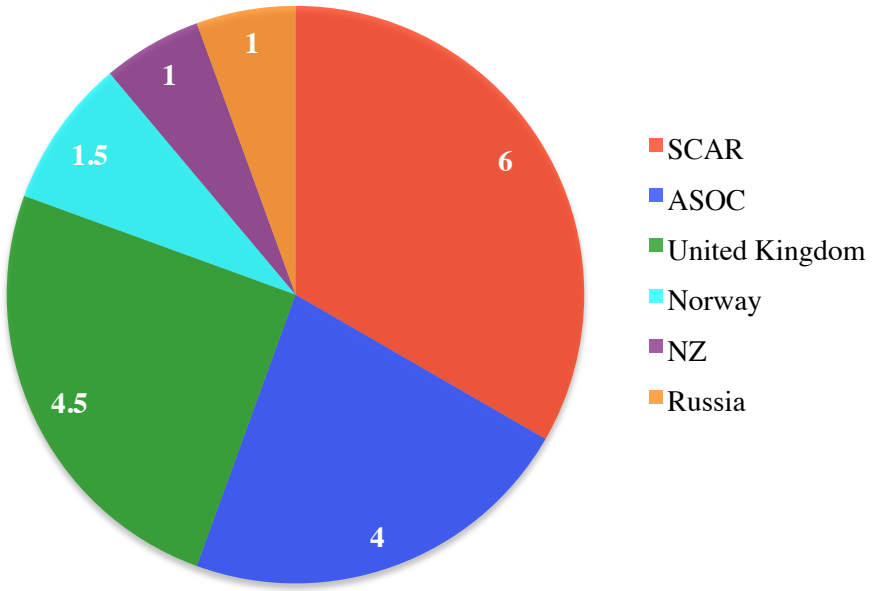

Figure 6.1: Background papers submitted to previous ATCMs by authors

Throughout the documents, the crucial role of Antarctica and the Southern Ocean in the Earth System is highlighted. The work of the IPCC is followed carefully, particularly with reference to the 2007 IPCC Fourth Assessment Report. Except for the document produced by Russia, all background documents consider it a scientific fact that human-induced greenhouse emissions are a significant driver of climate change. Particularly ASOC, but also other actors such as New Zealand highlight the need for collective actions in reducing emissions. They call to duty not just ATPs but all governments.

The Russian paper does not mention any human dimensions of climate change but emphasises the variability between climate models and claims that there is "no reliable data on the trends of climate change in the entire climate change region" (IP47, ATCM XXXI, p. 4). The paper also mentions variability in terms of observations. A meeting document from the United Kingdom describes patterns of climate change observations across the Antarctic continent as "patchy" (IP138, ATCM XXX). Some areas are slowly warming, others are cooling, and others again are rapidly warming.

The complexity of the Earth System is repeatedly emphasised. Although praising the productivity of climate science in deepening the knowledge about the earth's climate and the interactions between the different integral parts of the Earth System (e.g., the atmosphere, the oceans, the cryosphere, ecosystems and humanity), the presence of uncertainties regarding future scenarios is also admitted. Most documents, however, express no doubt about both the Arctic and the Antarctic Peninsula being particularly sensitive to climate change and highlight the fact that most rapid changes related to warming are observed in these regions.

Adverse consequences of climate change in the Antarctic are projected to affect Antarctic terrestrial and maritime ecosystems as well as the rest of the world including humanity. With reference to the Antarctic ice sheet, extensive sea level rise is the most often highlighted risk that would affect coastlines worldwide. A repeatedly mentioned risk for Antarctic ecosystems is the introduction of alien species. Apart from the environmental risks for and posed by Antarctica, the scientific value of Antarctica related to climate change is stressed in various documents. Ice cores are referred to as "unique archives", providing valuable records on "past climate and environmental changes at local, regional and global scales" (IP28, ATCM XXX, p.

3). Elsewhere, Antarctica as a whole is described as a "priceless natural laboratory" (IP138, ATCM XXX, p. 3). A clear message of the background documents is that more Antarctic research – including in the Southern Ocean – is needed.

Keynote addresses at the 2010 ATME draw on the story lines contained in the background documents. Three of the meeting's chairs, Winther, Gilbert and Summerhayes, acted as the keynote speakers. Each of them presented a different, although compatible, story line on climate change and Antarctica. Summerhayes introduced the ACCE report, highlighting Antarctica as a critically important part of the Earth System. Asking the rhetorical question of *Why should we care?,* he points out that:

> "By 2100 West Antarctic ice sheet may be discharge enough ice to raise sea level up to 1.4 m (+) – a significant challenge for Antarctica and for costal populations across the globe."[79]

Gilbert addressed climate change challenges for the Antarctic environment and concluded that how the ATS responds to these challenges is crucial for the future of Antarctica. The stakes are high:

> "At risk are the environmental, scientific and political values we currently place on Antarctica."[80]

Finally, Winther discussed Antarctica as a paragon for how to deal with climate change in general. Given the environmentally, socially and politically unique nature of Antarctica, he sees the value of Antarctica in the chance to develop solutions for climate change mitigation, for example in terms of sustainable energy and nature preservation, which then can be transferred to other places around the world. Moreover, the Antarctic can also be a best practice example for international collaboration and agreement (final report, ATME 2010).

The three messages of the keynote presentations can be summarised in three different meanings of climate change and Antarctica: a challenge for all life on earth, a challenge for Antarctic values, and a chance for global climate change negotiations.

6.3. Actors

Thirty-six representatives of fifteen ATPs participated in the 2010 ATME, in addition to eight invited experts from four international organisations, one Antarctic Treaty Secretariat representative and the meetings' own secretary. Compared to previous ATMEs, attendance at the 2010 ATME on climate change was rather low.[81] Neither China nor India, two important players in the global climate change debate and ATCPs, sent their experts to the meeting. None of the invited Antarctic Treaty Non-Consultative Parties participated in the 2010 ATME. The majority of ATCPs sent one or two delegates to the meeting. Norway as the host of the 2010 ATME had the largest number of delegates represented – although the number is moderate compared to New Zealand's delegation size at the 2009 ATME. Other dominating ATCPs, in terms of the sizes of their delegations, were the United States and the United Kingdom (Figure

[79] Quote taken from Summerhayes' keynote presentations (slide 38), which is available on the 2010 ATME website: http://atme2010.npolar.no/en/Presentations.html (accessed: 6/11/2014)
[80] Quote taken from Gilbert's keynote presentations (slide 41), also available on the 2010 ATME website: http://atme2010.npolar.no/en/Presentations.html (accessed: 6/11/2014)
[81] ATME 2000: 27 ATPs (63 delegates), 9 invited expert organisations (22 delegates); ATME 2004: 21 ATPs (57 delegates), 5 invited expert organisations (7 delegates); ATME 2009: 19 ATPs (72 delegates), 6 invited expert organisations (14 delegates)

6.2). The United Kingdom served as a co-host of the 2010 ATME and consequently sent more delegates. The strong engagement of the United States might have been also a result of the new climate change approach enforced by the United States government since the presidential change in 2009.

Although the majority of delegates were diplomats sent by the respective Ministries of Foreign Affairs, scientists were also well represented (see Figure 6.3). National Antarctic Programmes (NAPs) were also represented at the 2010 ATME, but it should be noted that some NAPs (e.g. Australia, the United Kingdom, and Norway) also incorporate scientific programmes in addition to logistics and administration. Australia and South Korea were exclusively represented at the ATME through their NAPs. The only representatives of France and Finland were affiliated with research institutes (Table 6.1).

Table 6.1: Overview ATME 2010 actors and papers submitted

	Antarctic Treaty Party	**Dele-gates**	**Affiliation / Role**	**WP**	**IP**
1	Argentina	1	Ministry of Foreign Affairs	0	0
2	Australia	3	Australian Antarctic Division	1	2
3	Belgium	1	Federal Science Policy Office	0	0
4	Finland	1	Finnish Meteorological Institute	0	0
5	France	1	French National Centre for Scientific Research	0	0
6	Germany	1	Federal Ministry for the Environment	0	0
7	Japan	2	Ministry of Foreign Affairs, Ministry of the Environment	0	0
8	Netherlands	1	Ministry of Foreign Affairs	0	0
9	New Zealand	3	Ministry of Foreign Affairs and Trade, Antarctica New Zealand, Victoria University	0	1.5*
10	Norway	8	Ministry of Foreign Affairs, Ministry of the Environment, Norwegian Polar Institute	0.5*	0
11	Russia	2	Ministry of Foreign Affairs, Arctic and Antarctic Research Institute	0	0
12	South Korea	1	Korea Polar Research Institute	0	0
13	Sweden	2	Ministry of Foreign Affairs, Swedish Environmental Protection Agency	0	0
14	United Kingdom	4	Foreign and Commonwealth Office, British Antarctic Survey	1.5*	0
15	USA	5	US Department of State, National Science Foundation	0	1.5*
Organisations:					
1	ASOC	3	Senior Advisor (USA), Advisor (France), Climate Coordinator (USA)	0	4
2	SCAR	3	Executive Director (UK)	0	2
3	IAATO	1	Environmental Operations Director (USA)	0	1
4	CCAMLR	1	Science Manager (Australia)	0	0

* half scores refer to co-authored meeting documents

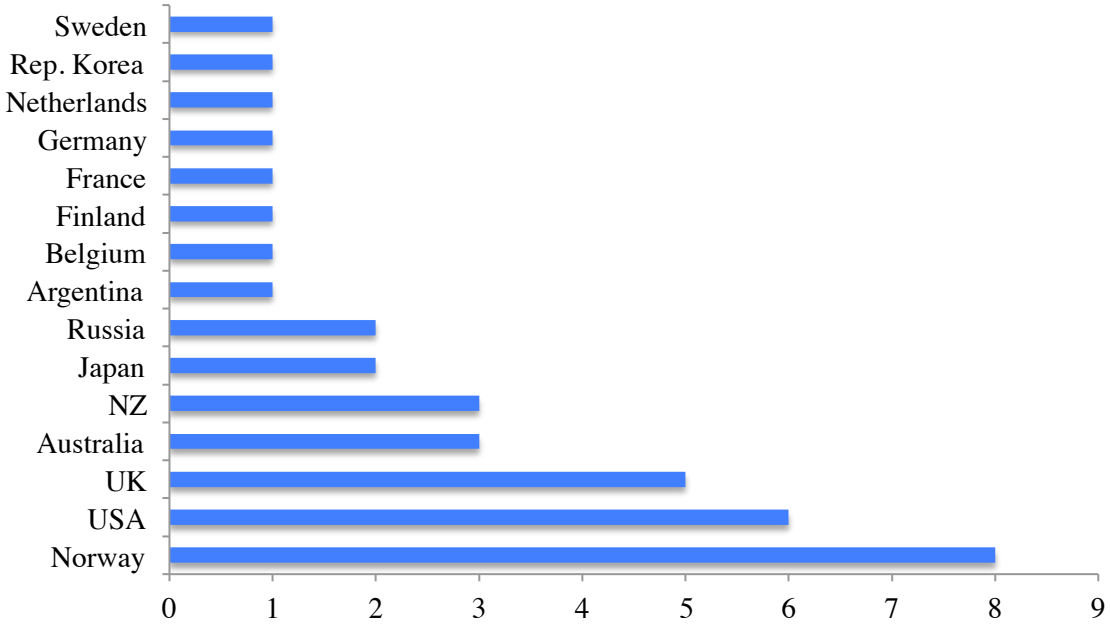

Figure 6.2: Number delegates present at ATME per ATP – source: 20010 ATME final report

Figure 6.3: Affiliations ATP delegates at 2010 ATME – source: 2010 ATME final report

Of the nine organisations invited to the 2010 ATME, only four sent their experts to the meeting. Among them were SCAR and CCAMLR, who both have observer status at ATCMs, as well as IAATO and ASOC, who are regular experts to ATS meetings. SCAR played a key role in the 2010 ATME with its ACCE report published only a few months before the meeting. In the report of the ATCM XXXII, a number of organisations linked to the UN are highlighted as desirable expert organisations to be part of the 2010 ATME, including the WMO, the IPCC and UNEP. None of these organisations attended the meeting.

In total, three WPs and thirteen IPs were submitted to the 2010 ATME, which is not an unusual number compared to the previous three ATMEs (2000, 2004 and 2009). Against the 2009 ATME, however, the 2010 ATME had much fewer submitted documents.[82] Only six ATCPs, not even half of all participating ATCPs, submitted meeting documents. Except for CCAMLR, all invited experts submitted meeting documents.

The biggest contribution in terms of the number of documents submitted to the meeting was by ASOC, followed by Australia, which took the lead among ATCPs with three submitted documents (see Table 6.1). The co-hosts Norway and the United Kingdom prepared an overview paper on the implications of climate change in Antarctica, which they submitted as a meeting document to the 2010 ATME (WP1). To prepare for the 2010 ATME, the Australian Antarctic programme had held a workshop, and the resulting preliminary qualitative Antarctic climate risk assessment was presented in their WP2. The assessment was based on guidelines to integrate climate change impacts into risk management and strategic planning provided by the Australian Government and published in 2006. Australia further reported on its development of a new ten-year strategic plan for its science programme (IP4) as well as its involvement in discussions to develop a large-scale monitoring programme for the Southern Ocean (IP5).

The United States and New Zealand used meeting documents to report on their plans and actions taken to address climate change in Antarctica (IP11, IP12), and IAATO announced the establishment of its Climate Change Working Group in its submitted meeting document (IP3). ASOC, on the other hand, produced meeting documents that called for climate change mitigation and adaptation actions in Antarctica, for which they gave various examples from the Antarctic cryosphere and ecosystems (IPs 7-10). The two meeting documents submitted by SCAR referred to the ACCE report and summarised the report's findings and recommendations (IP1, IP2).

6.4. Discourse

Agenda items 3-7[83] were based on topics for discussion at the 2010 ATME set by Decision 1 (2009) and thus relevant for meeting documents to submit by individual actors. Comparing the topics in terms of the frequency of being addressed in meeting documents, it is striking that all topics are relatively evenly covered, except for the topic on the Copenhagen negotiations, which is not discussed significantly in any meeting document.[84] None of the topics stands out in Figure 6.4.

[82] ATME 2000: 9 WPs, 2 IPs; ATME 2004: 26 WPs, 0 IPs; ATME 2009: 15 WPs, 16 IPs

[83] 2010 ATME agenda item 8 (*The need for further consideration of any issues and manners in which this can be achieved*) is not considered as an item to be addressed in meeting documents submitted by individual actors. Rather, item 8 is understood as an item that has to be discussed at the ATME with all participating actors collectively.

[84] The Copenhagen negotiations are barely mentioned in the 2010 ATME despite being on the meeting's agenda. Only ASOC comments on the COP 15 and notes that the negotiations made little reference to Antarctica (IP 9, ATME 2010).

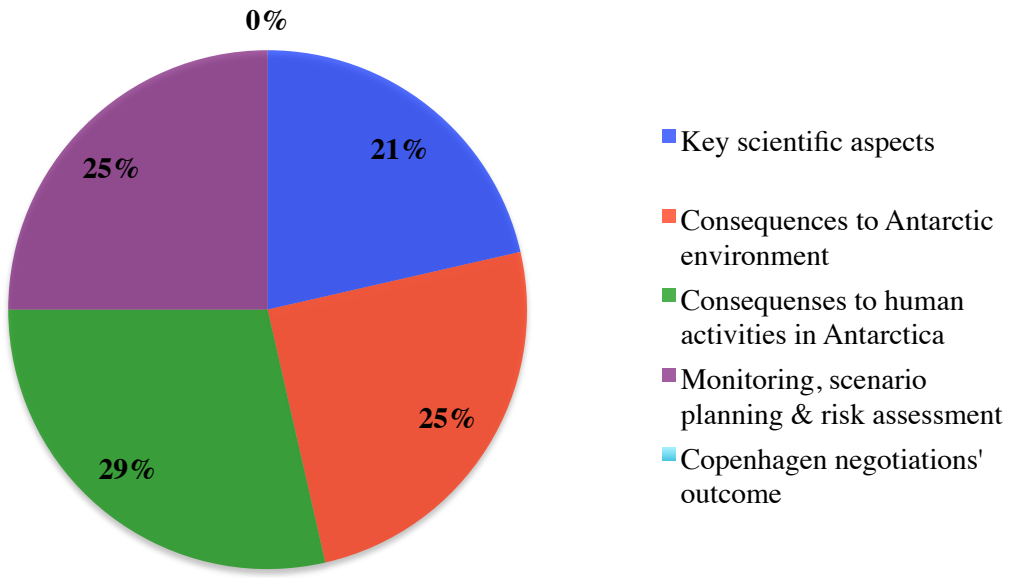

Figure 6.4: ATME meeting documents by agenda item (multiple assignments considered) – source: Antarctic Treaty Secretariat

A first thing that is noticeable when comparing the final reports of the 2009 and 2010 ATME is their differing structure. Taking into account the final reports of the 2000 and 2004 ATME, it becomes obvious that it is the 2010 ATME report that is the outlier. The 2010 ATME report follows the agenda up to agenda item 2. Then, the brief introduction of each submitted meeting document, chronologically by the document's number (WP1-3, followed by IP1-13), is separated from the meeting's discussion and recommendations. Compared to previous ATME reports, submitted meeting documents are usually introduced in the context of the topic that the document addresses and thus are integrated in the discussion and resulting recommendation.

Aware of their report's different structure, the 2010 ATME chairs note the wide-ranging contents and often cross-cutting meeting documents, which they specify as an explanation for the handling of the meeting documents in the report. The discussion in the report includes a comprehensive list of aspects related to climate change and implications of climate change for Antarctic management and governance. The list starts with the ACCE report, which relates to agenda item 3 (*Key scientific aspects of climate change*). The aspects that follow address, in one way or the other, climate change implications in the context of human activity in Antarctica (agenda item 5). Some of these aspects also touch on global climate change negotiations (agenda item 7), and on monitoring, scenario planning, and risk assessment (agenda item 6). Remaining aspects discussed in the report refer to climate change implications for Antarctic environments (agenda item 4). As such, the discussion in the 2010 ATME report contains three main components, in which agenda items 3-8 are integrated: the ACCE report, human activity in Antarctica and Antarctic environments (Figure 6.5).

Given the information that the discussions during the 2010 ATME were held partly in the plenary and partly in the two working groups on nature conservation and human activities, the structure of the meeting's report should be seen in this procedural context. Due to the comprehensive discussion included in the 2010 ATME report, the report was also considered in parallel with the meeting documents regarding the issue profile, adverse consequences and ascription of responsibility in the discourse analysis.

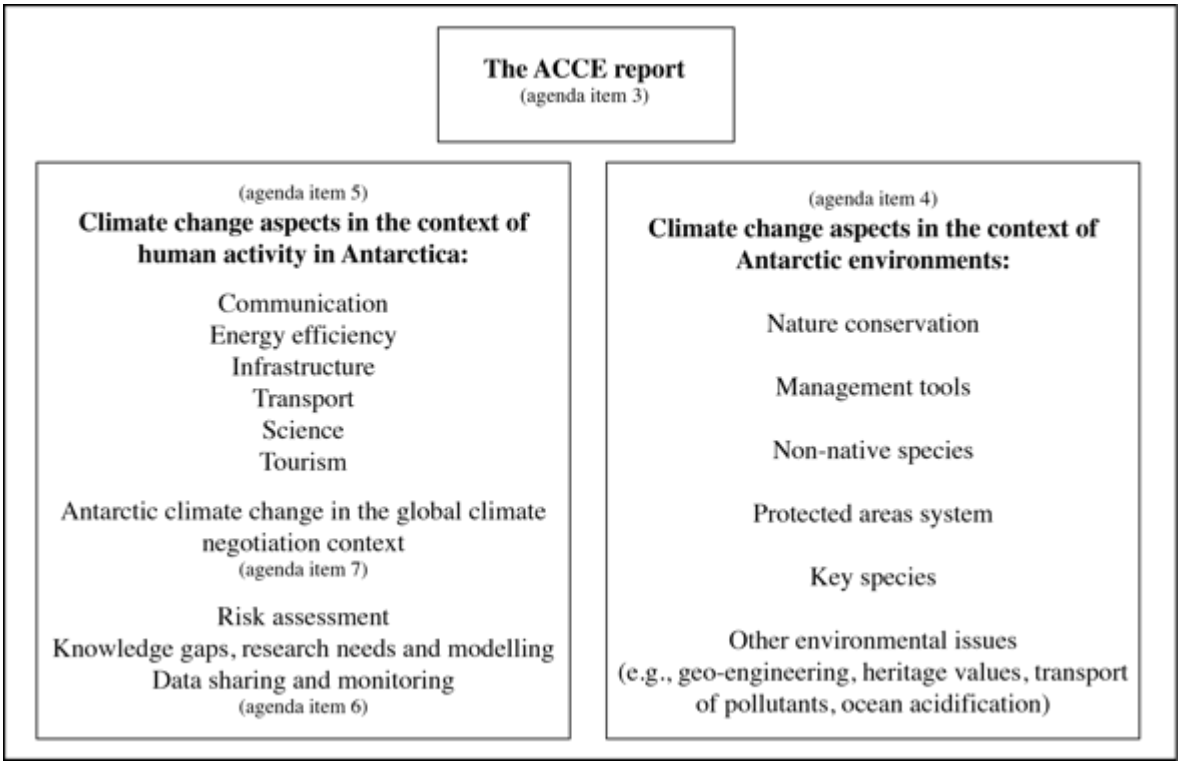

Figure 6.5: Antarctic climate change aspects included in the discussion of the 2010 ATME report organised into the three components: the ACCE report, climate change implications in the context of human activity in Antarctica and climate change implications for Antarctic environments

6.4.1. Issue Profile and adverse consequences

Defining the issue of climate change in the Antarctica context and its meaning for the ATS and beyond is at the heart of the 2010 ATME discourse. The 2010 ATME discourse can be described as collective brainstorming on what implications and potential future implications of climate change have to be considered in Antarctic governance and management. As such, dominating story lines do not really emerge, except for the fact that climate change is and will be affecting Antarctic environments and human activities in Antarctica. Comments in the meeting documents underscore the severity of the climate change issue and the major challenge it poses for Antarctic governance and management. For example, IAATO notes that its members perceive climate change as a "significant threat to the Antarctic environment" (IP3, p. 3). New Zealand states that a "key problem for both scientists and policy makers today is the pace of climate change" (IP13, p. 3). The following summarises consequences of climate change in Antarctica that are discussed in the 2010 ATME documents and report.

Climate change is consistently defined by its effects. Although some meeting documents note a few positive effects of climate change (e.g., a decrease in sea ice lowers the risk for shipping in Antarctic waters), most effects are associated with risks of adverse consequences both for Antarctic environments and for human activities there. Also, while some adverse consequences are already observable (e.g., more ice-free areas in the Antarctic Peninsula) the majority of identified risks concern future scenarios, which bring along "uncertainties [that] are almost unavoidable" (Australia, WP2, p. 4). Because of these uncertainties, some meeting documents note that it is not clear what values are at risk the most and should be given priority, but suggest the ACCE assessment report could be a starting point (WP1, WP2, IP12).

SCAR presented the ACCE report in a keynote presentation and two meeting documents submitted to the 2010 ATME, through which SCAR provided a comprehensive picture of the

scientific understanding of climate change in Antarctica. The ACCE report has been already discussed in Chapter 3. However, because the report's findings are crucial for the profiling of the climate change issue at the 2010 ATME, key findings of the ACCE report are summarised again in the following.

The assessment revealed that the ozone hole had isolated the largest part of Antarctica and shielded it from global warming trends. In this part of Antarctica, but particularly in the Ross Sea region, sea ice actually increased over the past three decades. In contrast, other parts of Antarctica, chiefly the Antarctic Peninsula area, experienced extensive warming which entailed a great risk for the terrestrial and maritime ecosystems in this area. In particular, the WAIS was thinning significantly and quickly. The loss of ice from the WAIS can contribute to major sea level rise (up to 1.4 metres) by the end of the century. Warmer temperatures and more ice-free areas in the Antarctic Peninsula have already caused a rapid expansion of plant communities, including non-native species introduced by visitors (IP1).

The decrease in sea ice around the Antarctic Peninsula affected the marine ecosystem with a significant decline of krill stocks and Adélie penguins moving away from this region. The decline of krill particularly was critical and is expected to have serious effects on the food chain. The report indicates that some species might not recover from overfishing or whaling in the future. Significant changes in Antarctic maritime ecosystems are also expected with the warming of the Southern Ocean. Ocean acidification and rising water temperatures would force species to adapt and might also generate immigration of other species. There is a potential risk for biodiversity as some species may go extinct. Antarctic ice core studies have shown that the current level of increase in greenhouse gas concentrations in the atmosphere is abnormally high, and the amount of greenhouse gases in the atmosphere is expected to continue to increase. Eventually, this will cause a warming of the entire Antarctic continent as the ozone hole is predicted to heal over the decades (IP1).

Overall, the ACCE projections describe dramatic changes and severe implications for Antarctic ecosystems, but also global implications in terms of sea level rise. A number of the adverse consequences outlined in the ACCE report and presented by SCAR are repeated in other meeting documents to the 2010 ATME. While the focus of the ACCE report is on the Antarctic environment, some meeting documents also mention adverse consequences of global climate change and resulting changes in Antarctic environments for human activities in Antarctica. Most of the consequences for human activities in Antarctica are mentioned in the 2010 ATME report. Climate change as a global problem (in terms of greenhouse gas emissions) calls customary business practices into question, not only in Antarctica but around the globe. Energy efficiency is also an issue in Antarctica.

Effects of climate change interfere with Antarctic operations directly and at their very core. In particular, warming is expected to affect Antarctic infrastructure (e.g., research stations, runways, routes). Potential issues are presumed with respect to waste management, water supply, the management of ice-based runways or the sustainability of inland transportation. Warming in Antarctica may also cause problems for shipping operations since increased production of icebergs means greater hazards for shipping. From a management perspective, the variability in environmental change across Antarctica makes it almost impossible to respond in a uniform way; this complicates the process of developing response actions in the first place. Here, Australia points out that climate change could significantly affect the performances of crucial Antarctic institutions such as the ATCM and CCAMLR (IP5, p. 3).[85] Lack of data and gaps in knowledge about the scope, implications and impacts of climate change in Antarctica further complicate policy-makers' aspirations towards well-informed decision-making.

[85] References were made to report of the ATCM XXXII (2009) and the CCAMLR XXVI (2007).

6.4.2. Ascription of responsibilities

"Antarctica is a critically important part of the earth system" (IP1, p. 3), is a key message in SCAR's ACCE report. Considering the seriousness of the climate change issue at a global level and its present impact, and even more so its alarming potential future implications, SCAR's message comes with a sense of enormous responsibility for everyone involved in Antarctica: scientists, policy-makers, managers, operators and tourists. While the ACCE focussed on long-term projections, Norway and the United Kingdom expected the 2010 ATME to identify short- to medium-term solutions in response to the questions with which the ATME was tasked.

One of these questions centred on the ways that Antarctic research can improve the scientific understanding of climate change at a global level. The ATME was also asked to consider how ATPs should respond to climate change in Antarctica (WP1). These two foci represent two perspectives: Antarctica in a global climate change context and climate change in Antarctica. Regarding the first, a clear responsibility towards global climate change debates and negotiations is felt in providing and contributing with science-based Antarctic knowledge. This makes scientists and NAPs particularly accountable, but also ATPs who are responsible for transferring the knowledge to the relevant audiences and policy fora.

Therefore, the communication of Antarctic science and knowledge on climate change to the international community is of utterly high importance, as several meeting documents and the 2010 ATME report emphasise.[86] Often mentioned target groups are the IPCC and UNFCCC, who are most prominent in climate change science and policy. Some actors such as Norway, the United Kingdom and ASOC note the competencies and responsibilities of different international bodies (WP1, IP7). The reduction of global emissions as a key issue in the global climate change negotiations is primarily the responsibility of the UN (and more precisely the COPs).

In terms of responsibilities in Antarctica, five general areas in which climate change actions are needed could be identified in the 2010 ATME meeting documents and report: emission cuts and energy efficiency, science-based strategic planning and risk assessment, nature conservation, strengthening collaborations and communication. Links between these areas are frequent. Similar to identified adverse consequences, the scope and breadth of responsibilities reflect the complexity of the climate change issue. Responsibilities discussed in the following describe suggestions for climate change actions rather than concrete ascriptions of responsibilities. Contrary to the 2009 ATME, meeting documents submitted to the 2010 ATME seldom provide recommendations in which responsibility ascriptions are evident. Suggestions for climate change actions in Antarctica generally apply, but are not limited to ATPs. Everyone interacting with Antarctica, in one way or another, is in charge.

Despite the responsibility of the UN, climate change mitigation is still perceived as something ATPs and other actors operating in Antarctica should consider. A number of actors emphasise the importance of making efforts towards cutting emissions in Antarctic operations. ASOC contrast the small total amount of anthropogenic greenhouse gas produced in Antarctica with the very high per capita emissions and argue that the "[r]eduction of greenhouse gas emissions from human activities in Antarctica [was] a win-win course of action" (IP9, p. 6). Talk about binding obligations are avoided in the 2010 ATME discourse, but efforts to highlight benefits from climate change mitigation to encourage actions are notable. Benefits are assigned to the reduction of emissions, local pollution and fiscal costs.

[86] In the global climate change discourse, the role of a scientists have become multi-faceted in interfacing policy and the public (Pielke Jr., 2007). Because of this, science communication increased immensely in importance (Rapley et al., 2014).

A different motive for climate change mitigation, mentioned in a number of meeting documents and also repeated in the 2010 ATME report, is the symbolic value of such actions taken in Antarctica. Actions in Antarctica are claimed to send out an important message to the rest of the world that climate change mitigation is needed and feasible. The transferability argument is particular evident in the 2010 ATME report, where it is integrated in the concluding remarks. In this respect, there is again a global context to responsibilities in Antarctica. Some actors, most notably the United States (IP6, IP11),[87] emphasise their own ambitions and actions taken with respect to energy efficiency – without compromising scientific research in Antarctica.[88] ASOC, on the other hand, acknowledges efforts done by other NAPs (IP9).[89]

A general solution to energy efficiency is seen in the use of renewable energy (e.g., wind farms, solar panels). The 2010 ATME report identifies COMNAP as an appropriate body to provide guidance in energy management matters.[90] Commitments to reduce the carbon footprint are further noted by the tourism industry. IAATO's Climate Change Working Group was established to address this topic and assess its member operators' mitigation efforts while providing guidelines (IP3).

Aside from mitigation, adaptation strategies to deal with current and predicted future climate and environmental changes in Antarctica are taken as essential to Antarctic management. Together with strategic planning, risk assessments are crucial (WP2). ASOC points to the principal responsibility to consider climate change risks in the planning of all human activities in Antarctica (IP7). As mentioned earlier, uncertainties are unavoidable in dealing with climate change and are also inherent in the global climate change discourse.

The 2010 ATME discourse made science the key to a strategic approach to climate change adaptation in Antarctica. A scientific basis for management responses is emphasised in numerous meeting documents and in the 2010 ATME report. SCAR presented an entire meeting document, based on the ACCE report, with recommendations on what actions should be taken (IP2). SCAR's recommendations can be summarised in the need for more research efforts and investments, which implies responsibilities of ATPs. Of particular value are the collection of additional observational data (including Antarctic cryosphere and biological monitoring) and the development of models. The IPCC (2012) highlights observational data and reliable models as key to high quality projections of change. As such, they present an important tool for policy-makers, which is also emphasised in the 2010 ATME report. Models need to be constantly improved and modified to new knowledge, but responsibilities also arise in the implementation of already existing observation systems.

SCAR also highlights benefits from paying attention to Arctic climate change science and comparisons between the two polar regions. Again, individual efforts in increasing scientific and more strategic research in Antarctica are reported, notably the launch of new climate change research programmes by the United States (IP12) and Australia's development of a new strategy plan for future research (IP4).

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[87] The United States express the goal to continuously lower per capita energy use while making more use of alternative energy sources. Together with New Zealand, the United States introduce the Ross Island Wind Energy project as a "Proof of Concept" for sustainability through cooperation between NAPs by using renewable energy (IP11, p. 3).

[88] This addition is important, because scientific research refers to another responsibility, as it will be discussed later.

[89] ASOC points to Australia, Germany and the United Kingdom, who all use, inter alia, wind turbines to operate their Antarctic stations.

[90] COMNAP had already started to address this matter: COMNAP submitted WP35 on *Best Practice for Energy Management – Guidance and Recommendations* to the CEP X, which was endorsed by the Committee.

Risk assessments include risks to Antarctic nature and ecosystems. The 2010 ATME report reminds ATPs of their obligation to comprehensive protection of the Antarctic environment according to the Madrid Protocol. Based on this obligation, the expert meeting derives two principles that should guide future conservation management in Antarctica: maximising the resilience of Antarctic environments and ecosystems to climate change, and minimising climate change risks for Antarctic environments and ecosystems in a precautionary manner.

Preventive risk management was also the preferred approach in the 2009 ATME discourse, where ship-borne tourism was in the focus. In the 2010 ATME discourse, however, other sources of risk are at the forefront. ASOC, for example, urges for the management of fisheries and the implementation of biosecurity measures to prevent the introduction of non-native species in Antarctica (IP9). Biosecurity measures, together with the expansion and establishment of Antarctic terrestrial and maritime protected areas, are also emphasised as important management tools in support of resilient Antarctic ecosystems. The United Kingdom points to ASPAs as a management tool that could become increasingly important in the battle against climate change (WP3). Some exemplary ongoing efforts are noted such as the work of the CEP, who has given highest priority to the issue of non-native species.

While obligations for Antarctic environmental protection are based on the Madrid Protocol, international cooperation is a requirement in the Antarctic Treaty. The benefit of collaborations is mentioned in the 2010 ATME discourse in various contexts. IAATO offers collaborations with the scientific community (IP3). Australia reports on collective efforts (including CCAMLR) for international collaborations in linking existing scientific resources (i.e. knowledge, data, tools) towards a comprehensive monitoring the impacts of climate change in the Southern Ocean (IP5). In terms of possibilities for climate change adaptation, the sharing of facilities and transport infrastructure is suggested in the 2010 ATME report. Also, the WMO is highlighted as a potentially valuable advisor to ATCMs and attempts should be made to strengthen the link between the two institutions.

Responsibilities in collaborations and communication are closely linked in collaborative communication. Data sharing through networks and platforms are mentioned in the 2010 ATME report as an opportunity to improve observation and monitoring on a large and small scale. The responsibility to communicate science to the international community has been already mentioned above, but such responsibilities apply likewise to the Antarctic community. Communication to national climate negotiation representatives is perceived as equally important to increase influence on the global climate change discourse, and is repeatedly mentioned.

Overall, responsibilities ascribed at the 2010 ATME are more generic and less targeted to specific actors compared to the 2009 ATME. Concepts such as energy efficiency, climate change mitigation and adaptation are borrowed from a well-established global climate change discourse, as are approaches such as data sharing, observation networks and integrated systems. There is an obvious focus on the work of the IPCC, WHO or UNFCCC, which is explicit in various meeting documents and the meeting's report. Actors also draw on the work done and the networks established for communicating climate change science and research in the Arctic. Science is at the centre of all deliberations about climate change responsibility, but collaboration and communication is also crucial at all levels. Actors seem to fall back to highlighting plans and efforts that are either already done or underway concerning investments in climate change research and emission cuts. Together with the repeated emphasis on the symbolic value of such actions, the ambitions expressed by actors are great but the challenges they are faced with are equally enormous.

6.4.3. Recommendations to the ATCM

The 2010 ATME agreed on thirty Recommendations to the ATCM, which is a relatively large number for an ATME[91] and for which reason only the first eighteen Recommendations were presented at the subsequent ATCM XXXIII in 2010. The chairs of the 2010 ATME, however, note in their report that despite the number of recommendations, the meeting "only skimmed the surface and has been able to visit only a few selected topics in depth" (p. 4). This comment reflects the range of adverse consequences and responsibilities elaborated in the previous sections. Similar to the areas for responsibilities identified in section 6.4.2., the 2010 ATME Recommendations 1-29 were summarised at the subsequent ATCM XXXIII in six thematic blocks: (1) The importance of climate change in Antarctica; (2) Emissions and energy efficiency in Antarctica; (3) The impacts of climate change on human activities in Antarctica; (4) Research needs and monitoring in Antarctica; (5) Nature management in Antarctica; and (6) ATS cooperation between the ATCM and CCAMLR (final report, ATCM XXXIII, p. 24). Recommendation 30, which suggests adding climate change as separate item on the ATCM agenda, stands alone.

With regard to the chairs' comment above, selected topics included in the 2010 ATME discussions refer to aspects of climate change that were included in Figure 6.5. Recommendations derived from discussions on these aspects, however, not every aspect resulted in a Recommendation to the ATCM. The connection between climate change aspects relevant to Antarctica and discussed at the 2010 ATME, agreed Recommendations and the final categorisation of the Recommendations to the ATCM are illustrated in Figure 6.6. More than half of the Recommendations address two themes: research needs and monitoring, or nature conservation (Figure 6.7). These two themes emphasis responsibilities for Antarctic environmental protection and conducting scientific research in Antarctica, both of which represent key principles in the ATS regime (Chapter 3). In the following, the 2010 ATME Recommendations 1-29 to the ATCM are summarised within the thematic blocks.

Recommendations 1-3, highlighting the importance of climate change in the Antarctic, were drawn from discussions around the ACCE report, communication and global climate change negotiations. The 2010 ATME recommends that the ATCM acknowledges the importance of SCAR's ACCE report, strategically communicates its findings to decision-makers, media and the public, and links Antarctic knowledge to global climate change negotiations.

Recommendations 4-6 focussed on emissions and energy efficiency in Antarctica. The 2010 ATME recommends that ATPs improve energy efficiency, the use of renewable energy and the reduction of carbon footprint. The ATCM should ask COMNAP to provide an update on its guidelines on *Best Practice for Energy Management* and welcome IAATO's best practice efforts on emission cuts of IAATO member ships. In highlighting the symbolic value of climate change mitigation efforts in Antarctica, the 2010 ATME recommends the ATCM to enquire a consistent method used for evaluating NAPs' energy consumption and ATPs to assess whether their stations' locations are suitable for wind farms.

Recommendations 7-9, addressing climate change impacts on human activities in Antarctica resulted from discussions around risk assessments, knowledge gaps and research needs. The 2010 ATME recommends that ATPs undertake climate change risk assessments with regard to Antarctic infrastructure, logistics and environmental concerns, and report to the ATCM. EIAs for new Antarctic facilities should consider climate change risks. Also, the WMO Executive Council Panel of Experts on Polar Observation, Research and Services should be urged to improve Antarctic climate models and invited to report on the Panel's progress and activities.

[91] In comparison, the ATME 2009 agreed on seventeen Recommendations to the ATCM.

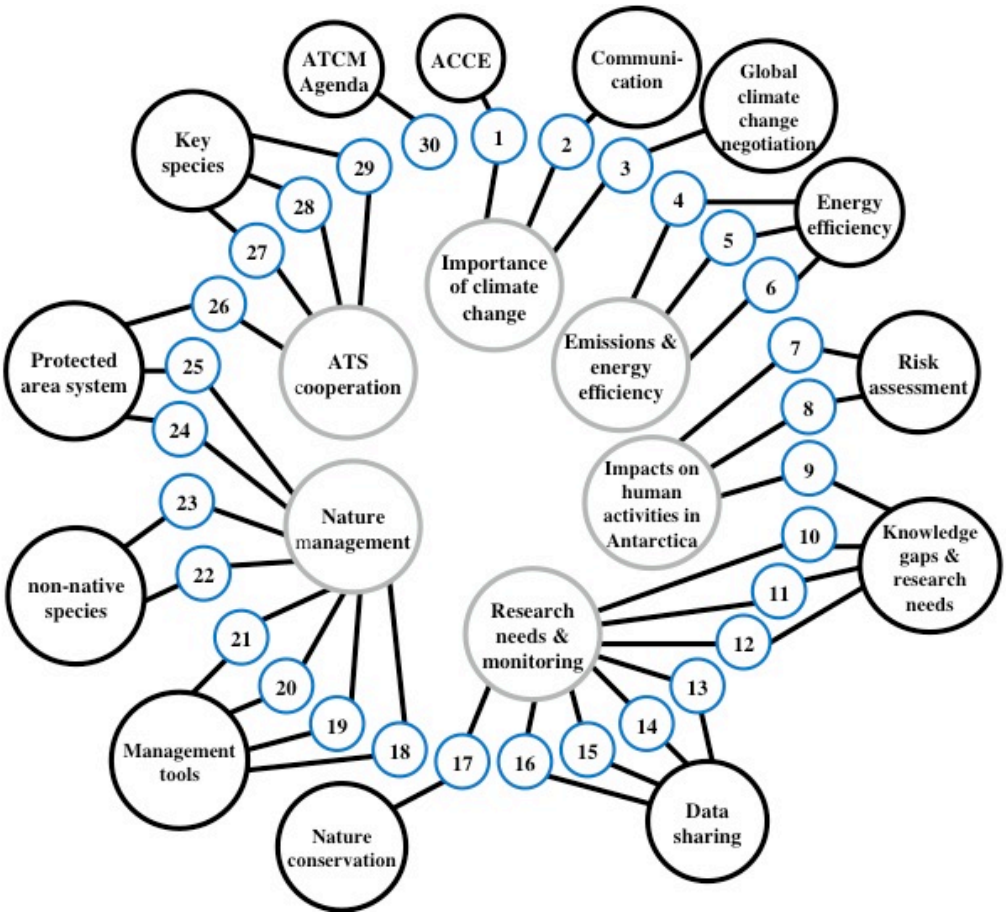

Figure 6.6: Recommendations resulting from discussion on selected climate change aspects at the 2010 ATME and summarised in thematic blocks

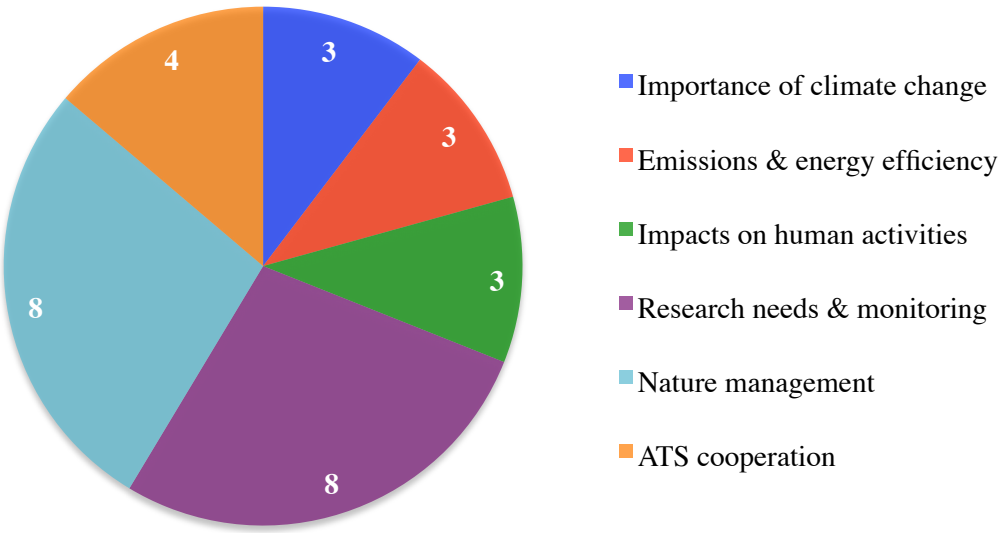

Figure 6.7: Recommendations 1-29 summarised in 6 thematic blocks

Recommendations 10-17 discuss research needs and monitoring, which represents knowledge gaps, data sharing and nature conservation aspects. The 2010 ATME recommends that ATPs invest in research for the improvement of future Antarctic climate predictions, and build networks between scientific research and operational agencies related to climate services. Drawing on the experience of the IPY, it was recommended that ATPs should continue supporting interdisciplinary polar and climate change research. ATPs should further promote collaborations in support of integrated Earth System models. The work of space agencies in Antarctic observations from space should be also encouraged. The 2010 ATME recommends that ATPs strongly support collaboration and development of integrated earth, atmosphere and space observing systems. ATPs should collaborate with each other for data collection, with SCAR, the Global Climate Observing System (GCOS) and the IPCC. The ATCM should further ask SCAR to include the identification of high risk Antarctic areas, habitats and species into its research programmes.

Recommendations 18-25 focus on environmental management while considering management tools, non-native species and protected area systems. As such, most of the Recommendations are addressed to the CEP. The 2010 ATME recommends that the ATCM and the CEP consider more regional environmental management tools. The CEP should develop a climate change response programme including a high priority management of non-native species, climate change vulnerability of protected areas, the improvement of ecosystem monitoring in cooperation with CCAMLR, and assessments of existing management tools. Together, the ATCM and the CEP should ask NAPs to survey terrestrial and marine biodiversity in terms of impacts of climate change and to share their data. The 2010 ATME recommends the CEP to find the means to link climate change knowledge with environmental management. The CEP should also consider ways to identify potential high risk areas for invasive species, implement monitoring protocols in such areas, and develop tools to response to non-native species in Antarctica. Also, ATPs should implement management tools and report on their effectiveness to deal with climate change implications for the Antarctic environment. The CEP should consider how flexible ASPA and ASMA management tools are to effects of climate change, and approach protected and managed areas systematically with regard to implications of climate change.

Recommendations 26-29 emphasise the need for ATS cooperation between the CEP and CCAMLR, which are linked to aspects of protected area systems and key species. The 2010 ATME recommends the CEP to reflect on possibilities, in coordination with CCAMLR, for immediate protection of new exposed areas due to climate change. Both the CEP and CCAMLR should ensure that biodiversity surveys are conducted regularly, sufficient monitoring programmes are established, and keep developing data collection and sharing platforms. The CEP should be aware of developments in climate change related conservation tools applicable to Antarctica.

In summary, the 2010 ATME Recommendations to the ATCM repeat responsibilities discussed in the preceding sections. Basic ATS principles such as conducting scientific research, international collaboration, information exchange and the protection of Antarctic environmental values underlie Recommendations. The freedom to conduct scientific research in Antarctica, mentioned in the Antarctic Treaty, becomes essential in the context of climate change with scientific research being an important source of information necessary for ATS and global policy-making and decisions. Antarctic research is now needed fully in order to understand the Earth System and to understand global climate change. Knowledge about changes in Antarctica is also crucial for Antarctic and global climate change policy as well as for Antarctic management in terms of strategic planning. Hence, the need of continuous monitoring and future projections are stressed. Recommendations suggest that climate change awareness and actions are necessary at all levels of human interaction with Antarctica:

governance, management and operations. Climate change is not a tangible problem; climate change is everywhere. This situation requires a prioritisation of needs for action. Therefore, risk assessments, based on scientific data and information, are necessary in order to quantify and qualify risks, and thus identify different levels of urgency (Wintle et al., 2011). Depending on the method how risk levels are evaluated human values can play a central role in judgements on risk (Colyvan et al., 2009). There is a strong emphasis on non-native species in the recommendations, which are obviously perceived as a high-level risk and priority for Antarctic environmental management.

The concluding remarks of the 2010 ATME chairs in their report (the overall take-away messages in a sense) highlight the potential in the symbolic value of Antarctica as a best practice example leading in international cooperation, communication and actions to climate change mitigation and adaptation. Such high performance will critically depend on the management and governance of Antarctica, which is the key responsibility of the ATCM. Therefore, it is important to continue discussing climate change in this forum. Moreover, in order to communicate the crucial role Antarctica plays in global climate change science, the ATCM has to acknowledge this role and responsibility in the first place.

6.4.4. Points of conflict and coalitions

There is no apparent conflict in the climate change discourse of the 2010 ATME. Actors broadly agree on Antarctica's significant role in global climate change, the adverse impacts of climate change on both Antarctic environments and human activities, and the need to respond to challenges of climate change. Some actors vary in highlighting specific aspects of effects of climate change, but there is no disagreement apparent in the meeting documents or the report. A major conflict in global climate change negotiations lies in responsibilities on emissions cuts, something the ATME climate change discourse touches on but in a significantly different light. By indicating that political climate change questions are the primarily responsibility of the UN and not the 2010 ATME, issues within global climate change negotiations are levered out of the ATME climate change discourses. What remains is a discourse on the science-based phenomenology of climate change in Antarctica and general responsibilities to fulfil ATS principles.

Efforts to reduce greenhouse gas emissions in Antarctica are symbolic acts but not a legal obligation. Rather ironically, climate change increases the already important role of science in Antarctica and ascends to the global level. Striking in this context is a comment in the 2010 ATME report, which points to science as the main purpose for ATPs with stations in Antarctica and that is now needed to understand climate change and Antarctica's role in the Earth System. Considering the characteristics of participating actors in the 2010 ATME, who mainly represent ATP governments, national Antarctic programmes and science institutes, consensus within the 2010 ATME discourse is no real surprise.

Discourse coalitions between Norway and the United Kingdom are evident in these parties' co-authored meeting documents for and prior to the 2010 ATME. Australia joins in by referring to Norway's and United Kingdom's WP in its own ATME meeting document. Other actors also cite meeting documents of their peers, such as New Zealand with a reference to ASOC in its ATME meeting document. Beside all that, various encouraged, planned or ongoing co-operation are reflected in the ATME meeting documents and the report. Altogether, the 2010 ATME appears as one big discourse and action coalition.

Against the consensus in the 2010 ATME discourse, reactions at the subsequent ATCM XXXIII are surprising. Apart from Recommendation 30 of the 2010 ATME (adding climate change as a separate item to the ATCM agenda), to which the ATCM XXXIII agreed while

noting that political questions related to climate change are also not the responsibility of the ATCM but of the UN, the ATCM XXXIII report documents a rather reluctant meeting to discuss the 2010 ATME Recommendations. Although expressing its general support of the 2010 ATME Recommendations, the ATCM XXXIII intended to consider these Recommendations not before the following ATCM a year later, which does not agree with the level of importance and urgency that was given to the climate change issue in the 2010 ATME discourse. Only after objections by Sweden and the United Kingdom, and "some discussion among Parties and SCAR" (final report, ATCM XXXIII, p. 92), the ATCM XXXIII adopted Resolution 4 (2010) and Decision 5 (2010).

With Resolution 4 (2010), ATCPs acknowledged the importance of SCAR's ACCE report, and in Decision 5 (2010), ATCPs agreed to forward the ACCE report to the UNFCCC, IPCC, WMO and IMO. Together, Resolution 4 (2010) and Decision 5 (2010) accomplish 2010 ATME Recommendation 1, which refers to the acknowledgment of the ACCE report and its importance to the global climate change discourse. But this is all the ATCM XXXIII did as immediate action from the 2010 ATME Recommendations. It should be noted, however, that at the CEP XIII meeting reactions to the 2010 ATME Recommendations were quite different.

The CEP also acknowledged the importance of the ACCE report (2010 ATME Recommendation 1) and added climate change as a separate item to its agenda (2010 ATME Recommendation 30), but it considered and discussed further 2010 ATME Recommendations, particularly those addressing the CEP directly.

6.5. Change in the discourse

As mentioned several times in this chapter, the climate change discourse, in contrast to tourism or shipping discourses, is relatively recent within ATCMs. Meeting documents addressing climate change have been regularly submitted to ATCMs only since 2003. The 2010 ATME was supposed to stimulate the further development of the ATCM climate change discourse. Therefore, if the ATCM climate change discourse were in the process of changing, the 2010 ATME would be at an early stage of this process. There are no grounds for a discussion on changes in the nature of the climate change discourse; however, a change in the development of the climate change discourse within the ATS can be examined based on meeting documents addressing climate change and submitted to ATCMs.

Key to the climate change discourse in the scope of ATCMs is SCAR's ACCE assessment, which was central to the 2010 ATME and its importance was also recognised by ATPs at the ATCM XXXIII as discussed above. Figure 6.8 demonstrates a gradual increase in climate change documents submitted between 2005 and 2008; i.e., during the development phases of the ACCE. A first draft of the ACCE report was circulated to the wider community in 2008 (Turner et al., 2009); however, in the same month the 2008 ATCM XXXI was held, which would have not allowed ATCM participating parties to prepare meeting documents as a respond to the draft report. Another potential initiator for the 2008 rise in climate change-related meeting documents submitted to the ATCM is the release of the Fourth Assessment Report of the IPCC in 2007. In this context, Figure 6.8 may demonstrate a reaction to the global climate change science discourse. Given the attention the IPCC[92] and its reports receive on a global scale (Hulme & Mahony, 2010), the rise in 2008 in Figure 6.8 does not present a very strong reaction from ATCM parties to such global events. Also, considering the fall in climate change-related meeting documents submitted to the ATCM XXXII in 2009, just before the COP 15 as a major event for global climate change negotiations, links between the ATCM and global climate change discourse are not discernible.

[92] The IPCC received the 2007 Nobel Peace Prize (Hulme & Mahony, 2010).

On the other hand, the steep increase in ATCM climate change related meeting documents after 2009 that can be linked to the 2010 ATME. The greatest number of meeting documents was submitted in 2011 to the ATCM XXXIV, when climate change was established as a separate agenda item for the first time. In view of the discussion in the previous section, the peak can be further explained by ATPs' decision at the ATCM XXXIV to deal with the 2010 ATME Recommendations more thoroughly at the ATCM XXXIII. However, what Figure 6.8 nicely shows is how numbers of climate change related meeting documents submitted to ATCMs have generally increased since the 2010 ATME.

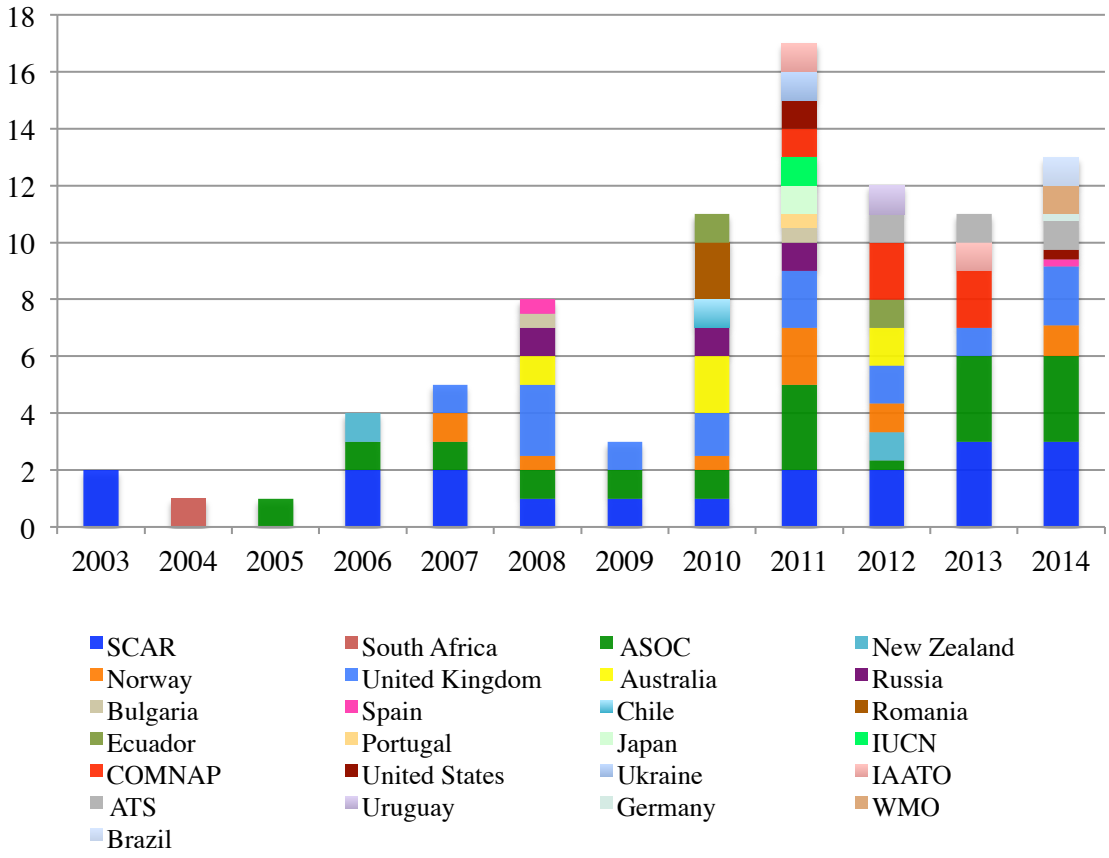

Figure 6.8: Numbers and authorship of meeting documents (including WPs, IPs, SPs and BPs) submitted to ATCMs (and meetings of the CEP respectively) between 2003 and 2014 and classified as climate change related (joint documents by several authors are allocated proportionally) – source: Antarctic Treaty Secretariat

The development of climate change related ATCM meeting document submissions is parallel to the increase and decrease of the diversity of meeting documents' authors. As shown in Figure 6.8, the years 2008 and 2011 stand out with major diversity increase. At ATCMs in 2010 and 2011, climate change related meeting documents were also, for the first time, submitted by South American ATCPs (i.e., Chile and Ecuador), in addition to climate change meeting document submissions by Non-Consultative Parties (i.e., Romania and Portugal). Despite that, Figure 6.8 clearly shows that the ATCM climate change discourse is mainly driven by a relatively small number of actors – compared to the total number of ATPs, Observers and invited Experts. Among these actors, SCAR, ASOC, the United Kingdom and Norway can be identified as the most constant actors in this discourse, who also made major contributions to the 2010 ATME discourse. There is no real diversity of actors participating in

the ATCM climate change discourse. Actors mostly originate from Europe and the Americas, with a majority of Western countries.

Content-wise, ATCM meeting documents reflect the 2010 ATME discourse. In fact, some of the ATME documents were re-submitted to the ATCM XXXIII in 2010. A large number of meeting documents report on climate change research and monitoring in Antarctica. There are also some direct responses to ATME Recommendations. For example, COMNAP provided an update on energy management guidelines (IP31, ATCM XXXV) and held a workshop to stimulate the exchange of experiences on climate change implications for Antarctic operations (IP4, ATCM XXXV). Also, Norway assessed the potential for wind energy at its Antarctic station (IP74, ATCM XXXIV).

Norway and the United Kingdom continued their collaboration and addressed jointly a number of responsibilities highlighted in the ATME discourse, such as the development of a method to classify ASPAs' climate change vulnerability (WP43, ATCM XXXIV) and identified an assessment tool for ecosystem resilience applicable to Antarctica (WP33, ATCM XXXV). The ATME's call for enhanced Antarctic science communication was addressed by Australia (WP32, ATCM XXXV) and SCAR (IP44, ATCM XXXV). Symbolic actions such as the introduction of the Earth Hour in Antarctica (IP58, ATCM XXXV) were also established.

As mentioned above, there has been the general reluctance of the ATCM XXXIII to deal with the 2010 ATME Recommendations. It is mostly individual actors, notably 2010 ATME actors, who are responding to the Recommendations. Norway and the United Kingdom, the 2010 ATME co-hosts, attempted to accelerate the process and initiated an overview table with information on the progress of each Recommendation (WP44, ATCM XXXIV), for which the Antarctic Treaty Secretariat was commissioned to keep the table updated (final report, ATCM XXXIV). The process is ongoing. In 2013, at the ATCM XXXVI, the Secretariat reported that, only Recommendation 30 (climate change as a separate item on the ATCM agenda) had been fully completed and another eight Recommendations (1, 4, 5, 7, 17, 20, 24, and 29) partly completed, while the majority of Recommendations is still pending (SP7, ATCM XXXVI).

The final report of the ATCM XXXVII in 2014 documents a proceeding climate change discourse. SCAR continues with its annual updates on climate change science in Antarctica, but now also started cooperating with the UNFCCC. Norway and the United Kingdom co-convene an ICG on climate change within the CEP with the goal of developing a Climate Change Response Work Programme for the CEP. So far, the ATCM climate change discourse remains gaining main input from the same small number of actors (i.e., SCAR, ASOC, the United Kingdom and Norway), for which the discourse is not very heterogeneous.

6.6. Values

As mentioned several times in this chapter, the 2010 ATME discourse focuses on basic questions to thoroughly understand the implications of climate change in Antarctica. The discussion of basic questions is beneficial for the identification of values because deliberation on such questions reveals worldviews and beliefs.

The 2010 ATME discourse addresses the value of Antarctica. From the scientific community (SCAR), in particular, the value of Antarctica is perceived and evaluated by its nature, most notably its ice, as a significant source to produce new knowledge, which is valued. Such a value of the Antarctic environment "as an area for the conduct of scientific research," is manifested in the Madrid Protocol (Article 3, see also Chapter 3). Although the "intrinsic value of Antarctica" is also mentioned in Article 3 of the Madrid Protocol, which includes the scientific value of Antarctica, the value of Antarctica for scientific research is not of intrinsic

nature. Based on discussions on intrinsic value in Chapter 1, Antarctica, in the context of the 2010 ATME discourse, is not valued for itself but for its benefits to scientific research. However, in the ATME climate change discourse, such benefits are argued to go beyond scientific research. More precisely, the knowledge produced by using Antarctica for scientific research is also valuable to the international community.

In Gilbert's keynote presentation to the 2010 ATME, there is, beside the scientific value of Antarctica, also the environmental and political value of Antarctica mentioned. The basis for these three value categories can be found again in the Madrid Protocol, in which Antarctica is designated "as a natural reserve, devoted to peace and science" (Article 2). Similar to Antarctica's value to scientific research, its value to political peace does not refer to the value of Antarctica itself, but to the benefits of a peaceful situation for policy-making. Environmental values of Antarctica may include intrinsic value if Antarctic environments themselves are valued. But this is not the case if the environmental value is linked to the scientific value of Antarctica, and Gilbert mentions this link. The issue of climate change in Antarctica is clearly stated as an issue that puts human values that are placed on Antarctica at risk.

In addition, Winther's keynote presentation mentions the symbolic value of climate change actions taken in Antarctica. Climate change actions become symbolic, because they are practiced in Antarctica. It can be argued that it is the symbolic value of Antarctica itself that is passing over the symbolic value to climate change actions in Antarctica. Whether Antarctica itself is assigned a symbolic value or not, in the context of symbolic actions it is again about political benefits that can be gained from Antarctica.

The 2010 ATME discourse, however, is clearly structured in climate change implications for human activities in Antarctica and for the Antarctic environment. In this sense, two different kinds of concerns are distinguished. Similar to the 2009 ATME, concerns are aligned in two different directions: adverse consequences for human beings in Antarctica and adverse consequences for Antarctic environments. Both are undesirable. Such a critical view on changes and efforts to prevent such changes – if possible – implies an underlying value that can be referred to Schwartz's basic human value *Tradition*.[93]

Also, like in the 2009 ATME discourse, the issue of climate change in Antarctica is discussed as a governance and management problem. Climate change effects on the functioning of ATS institutions such as the ATCM and CCAMLR are mentioned. Therefore, the security of the governance system is potentially threatened. *Security* is another basic human value in Schwartz value theory. Security can be referred to either the stability of a social system or to personal safety (Chapter 1). The value of the safety of people is also inherent in the discourse and is driving the discussions on potential impacts on human activities in Antarctica (i.e., shipping, infrastructure and water supply in Antarctica). The value of human safety on a global scale is implicit in talk about potential sea level rise as a risk to coastal populations. However, security plays also a role in nature conservation and environmental protection addressed in the 2010 ATME discourse. Biosecurity is explicitly mentioned in the 2010 ATME discourse. In the context of concerns about the wellbeing of Antarctic ecosystems, Schwartz's basic human values *Benevolence*[94] and *Universalism*[95] can be identified. Moreover, in pointing out ATPs obligation to protect the Antarctic environment based on the Madrid Protocol, the basic human value *Conformity* with *Rules* is expressed.

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[93] Schwartz's Tradition value is defined by the motivational goal of maintaining and preserving traditions (Chapter 1), which applies to human activities in Antarctica, but, figuratively, also to nature conservation in the sense that nature should retain its character.

[94] Benevolence in form of 'Caring' for others (Chapter 1).

[95] Universalism to 'Nature' (Chapter 1).

Climate change as a management problem is referred to in uncertainties related to climate change and the variability in environmental changes across Antarctica, for which knowledge becomes particularly valuable. Knowledge, in this context, also signifies Schwartz's basic human value *Power* in the sense of control. Various management tools (e.g., risk assessments, monitoring, protected and managed areas) are discussed in terms of increasing the ability to deal with implications of climate change. Further, risk assessments, the monitoring of Antarctic environments and modelling for projecting future scenarios are all means to overcome uncertainties, therefore, also represent Hofstede's cultural dimension of *Uncertainty Avoidance*.[96] Similar to the 2009 ATME, collaborations and communication among parties and between parties and relevant international organisations are highlighted to increase efficiency and effectiveness, which, in turn, promotes success and can be therefore, attributed to Schwartz's basic human value *Achievement*.[97]

6.7. Summary

With the main focus on the 2010 ATME, Antarctic climate change discourse has so far been proved to be led by scientifically-minded actors. The expert meeting was well staged with SCAR's ACCE report at its heart. Invited experts had a strong voice in the 2010 ATME discourse, which was primarily future oriented. The composition of participating actors was characteristic for the climate change issue, which is usually discussed at the interface of science and politics. Compared to the 2009 ATME, however, participation and contributions through submitted meeting documents was low. Among the meeting documents submitted to the 2010 ATME, topics were evenly covered – except for the outcome of the Copenhagen negotiations. Generally, the 2010 ATME appeared as a collective brainstorming of implications and potential future implications of climate change in Antarctica relevant to governance and management in Antarctica.

Discussions within the ATME mainly dealt with very basic questions, which was due to the task given. The difficulty of approaching the climate change issue for the governance and management of Antarctica in a systematic way is apparent in different attempts of the 2010 ATME to categorize climate change aspects. The original topics set by Decision 1 (2009) were replaced by a list of different aspects of climate change outlined in the 2010 ATME report and presented to the subsequent ATCM in summarising categories (Figure 6.6). Similar to the ship-borne tourism issue at the 2009 ATME, the issue of climate change is addressed from an Antarctic environments perspective and from the perspective of human activities in Antarctica.

There is a strong focus on the global context and links between Antarctica and the rest of the world. Climate change as a threat is also a chance to make the world aware of the significance of Antarctic science. On the other hand, it is realised how climate change affects constructions of human activities in Antarctica. Even the ATS is affected. Climate change is taken seriously, because nature's powerful forces are increasingly better understood, to which humanity is very much defenceless. Similar to the ship-borne tourism discourse, there is a sense for the need of action in the 2010 ATME documents. But the climate change issue is highly complex. The Antarctic environment – originally protected for peace and science, then also for ethical and aesthetic reasons, and perhaps biophilia[98] – is now also holding inside its icy grasp an existential threat for humanity. Antarctica is the sleeping giant, which no one wants to wake. As such, the protection of the Antarctic has two aspects: the concern for Antarctic

[96] The cultural dimension of Uncertainty Avoidance refers to the stress level an unknown future causes in a society (Chapter 1).
[97] The value Achievement is defined by its motivational goal of success (Chapter 1).
[98] The concept of biophilia was already mentioned in Chapter 2. It refers to the human connection to nature on an emotional basis, which may also apply to Antarctica for some individuals.

environments and ecosystems, and the concern for human societies and habitats. The greatest worry is losing the Earth System's balance, which would have dangerous implications. One key problem is that it is uncertain where the tipping points are.

Because of the basic questions that shape the climate change discourse of the 2010 ATME, numerous basic human values that underlie the discourse could be identified including Security, Benevolence, Universalism, Power, Conformity, Tradition and Achievement. The discourse also showed tendencies of Uncertainty Avoidance, which refers to one of Hofstede's cultural dimensions.

Overall, the 2010 ATME discourse did not come against conflicts. On the whole, discussions proceeded in consensus. Actors agreed on the importance of the ACCE report and the need for science-based strategic actions in climate change mitigations and adaptation in Antarctica. However, the consensus within the 2010 ATME should be viewed with caution as the climate change discourse within the ATS is mainly driven by a small number of actors, who do not represent the diversity of the ATS. Current difficulties in making progress on the 2010 ATME recommendations within the ATCMs indicate that climate change is not perceived with the same importance by all ATPs.

7. Final discussion and conclusion

With the objective of examining values in an interdisciplinary context of human engagement with Antarctica, this thesis embraced a three-stage analysis, starting with an interdisciplinary literature review of value and value-related theories followed by a framework analysis of the ATS, which finally led to empirical document-based discourse analyses of two case studies. This final discussion reflects on the theoretical development of the investigation before moving to a comparison of the two case studies and discussion of the research questions. The chapter closes with final conclusions to be drawn from the present investigation.

7.1. Theoretical development

The concept of value is a fundamental concept for humans as intelligent beings. Values give meaning to things, to life goals, and the desire to strive for these goals. Values provide the ethical grounds for people's coexistence and interaction with their environments. Judgements are based on values (Baier, 1967). Following the decision to treat values as a behavioural subject-matter in this thesis, links between values, social, and environmental behaviour theory were explored. Values were unanimously identified as being at the core of everything people do and described as drivers of human behaviour, including decision-making. A working definition of values was elaborated: values are "internalised codes that affect behaviour and include judgements on what is good and desirable" (Chapter 1). However, during the transition from a metaphysical and theoretical to a more applied approach, it became clear that deep-rooted values influence human behaviour only indirectly. Complex psychological processes behind people's actions include several variables.

This thesis concentrated on variables that activate norms for action, based on Schwartz's Norm Activation theory and Stern et al.'s VBN theory. At this point, the focus of this thesis shifted from individual to collective action. Complex systems of values, beliefs and norms exist at all levels, from the individual to the international community. At the collective level, matters are much more complicated. Here, actions require agreements between individual members of the collective who each have their own value and belief system. Against the background of interconnected value and belief systems at different levels, policy-making can be seen as a way of negotiating beliefs. Beside a network of different belief systems across levels, the institutional framework in which policy-making takes place also influences action situations. Therefore, both political actors and the institutional structure had to be considered in the research presented in this thesis when looking at policy-making processes.

The theoretical groundwork on values and actions was developed in the context of environmental ethics, behaviour and policy – already in view of the Antarctic case. At this point of the thesis a new dimension of value emerged: the value of the environment itself. Links between values and actions were considered in relation to environmental concerns. With reference to the environmental crisis and social movements of the 1960s and 1970s, the aspect of change – in attitudes and behaviour towards nature – came to the fore. Throughout the literature review the possibility of change was emphasised as a consequence of dynamic value and belief-systems. But with the environmental crisis came also an awareness of the need for collective action in nature conservation. In order to enforce appropriate and consistent behaviours, the means of a top-down management of environmental resources was discussed, which eventually led to environmental policy.

The literature review concluded with value theory being extended to a wider context of social, environmental and institutional theory including concepts of cultural dimensions, norm

activation, environmental cognition and pro-environmental behaviour, collective action, the governance of the commons and policy-making. Drawing on a range of academic disciplines, these concepts were linked by common aspects of value or belief. Such links allowed for elements from different concepts to be combined and modified. Also, perhaps most importantly, all concepts were applicable to Antarctica, or, more precisely, to the ATS.

7.2. Application to Antarctica

The ATS, then, became the focus of the second stage of the investigation. The framework analysis of the ATS revealed an affinity to global politics and international agreements, which are also manifested in the ATS regime. Despite Antarctica's remoteness, the ATS, as a human construct, reflects and incorporates many of the ideas that arose in other parts of the world and within the UN. Political actors of the ATS come from around the world, and it is these actors who bring different value and belief systems into the ATS. But the ATS, itself, has its own value and belief system. Consequently, Antarctic policy-making has to deal with a multi-layered system of different value and belief systems. The critical aspects identified were the perceptions of Antarctica in the context of contemporary issues, potential conflicts that could arise from a multi-layered value and belief system, as well as changes within the system. These aspects became the content of the three research questions: *What role is ascribed to Antarctica concerning contemporary issues? Where and why do conflicts arise in the ATS policy-making process that are based on conflicting values? What changes in the underlying belief-systems are driving policy-making processes and what has caused the change?*

The last stage of the investigation focused on the concept of beliefs. The fact that values are not directly observable required an appropriate alternative. With reference to the VBN theory, beliefs mediate between values and actions and, therefore, contain value effects. This is certainly not the same as analysing values directly, but in being the closest to values, beliefs are an appropriate approach to the study of values. Beliefs include an awareness of adverse consequences, which presupposes a specific understanding of the issue, and own ascription of responsibility. Case-specific meanings of all these belief variables are produced in a political discourse, for which political discourse analysis was chosen as the research method – given that the research questions already implied Antarctic policy-making as the research focus. On top of that, the database of the Antarctic Treaty Secretariat provided extensive and complete research material in the form of meeting documents and reports of ATS meetings, which could be easily accessed. ATS meetings are the action situations, in which Antarctic policy-making occurs. Because of their specialisation on one specific topic, ATMEs appeared to present optimal action situations for political discourse analyses.

7.3. Case Studies I and II

The decision to consider the last two ATMEs for the empirical study, which was held within the same intersessional period between ATCM XXXII and ATCM XXXIII, and only a few months apart from each other, turned out to be beneficial as the two case studies were rather contrasting. But the case studies also showed some interesting similarities, *inter alia*, with regard to how Antarctica is perceived and valued. In the following, results of both case studies are discussed and compared.

7.3.1. Differences between ATMEs

Differences between the discourses of the 2009 ATME and the 2010 ATME existed in the very nature of both discourses, which included time orientation (focus), complexity, experiences and conflicts in the discourse. Each of these aspects will be commented on in the following.

7.3.1.1. Focus

The 2009 ATME on ship-borne tourism focused on the current situation, while looking back into the past. Particularly, in view of the series of incidents with tourist vessels involved, the problem was not in a distant future, but here and now. Although considering consequences of potential future incidents, such incidents could occur any time. The core of the problem, based on observations on ship-borne tourism developments in the past, lies in current ship-borne tourism governance and management, which was to be addressed.[99] In contrast, the 2010 ATME on climate change was mainly looking into the future. Some current developments that were worrying – such as the rapid thinning of the WAIS, warming oceans or the introduction of alien species in Antarctica – were addressed, but these phenomena were considered just the beginning of a development with much more disastrous future scenarios. As such, the problem lay in the future, although it was not certain how far in the future.

7.3.1.2. Complexity

Both ATME discourses were complex, but their complexities fundamentally differed from each other. In the 2010 ATME, it was the topic, the phenomenon of climate change that was highly complex. Associated problems were large-scale, affecting basically all Antarctic properties including the cryosphere, ecosystems, the Southern Ocean and beyond. This made the problem difficult to grasp and related future scenarios somewhat abstract. The complexity of the ship-borne tourism ATME, on the other hand, arose out of the long history of the two key ATCM discourses in tourism and shipping, which were merged into the ship-borne tourism discourse. In the 2009 ATME, it was the discourse that was complex because of the entanglement of previous discourses and actors with their own histories of interactions with tourism and shipping. Judgements were not just based on principles but also experiences. Moreover, the 2009 ATME discourse included policy-makers, SAR authorities and the tourism industry, who presented very different involvements and experiences with Antarctic ship-borne tourism.

7.3.1.3. Experience

There were differences in the experience between the two discourses. The ship-borne tourism discourse of the 2009 ATME was heavily based on experience and included different stakeholders. The climate change discourse of the 2010 ATME was comparatively lacking experience and was driven by a relatively homogenous, science-minded group of actors. Lack of experience in the 2010 ATME discourse occurred in two ways. First, although there was comprehensive scientific knowledge about climate change that allowed projections of future scenarios, practical experiences with the potential capacity of climate change implications were limited, because worse adverse consequences are still to come. Secondly, the climate change discourse within ATS fora was rather undeveloped before the 2010 ATME. Therefore, the 2010 ATME discourse addressed basic questions within general – and, in some cases, vague –

[99] Recent developments, particularly in regard of the IMO Polar Code, have been mentioned in a footnote in Chapter 5.

topics it was tasked to discuss. In contrast, topics for the ship-borne tourism ATME were much more specific and detailed. The relative novelty of the climate change discourse within ATS meetings made this discourse more transparent compared to the Antarctic ship-borne tourism discourse. Because the ATME climate change discourse addressed basic questions, it is more focussed on principles, which was beneficial for the analysis.

7.3.1.4. Conflicts

No conflicts could be identified in the 2010 ATME. Instead, the ATME climate change discourse proceeded in consensus about the severity of the climate change issue, based on scientific findings, and the importance for the ATCM to deal with the climate change issue. In principle, there was agreement in the ATME ship-borne tourism discourse on the need to ensure human safety, the protection of the Antarctic environment, the existing risks associated with Antarctic shipping, and the need for actions to minimise such risks. However, differences in emphasis and subliminal conflicts occurred in the debate on practical solutions for adequate risk management. In particular, the idea of a strengthening of PSC created some tensions among ATPs with differing viewpoints. However, the consensus in the ATME climate change discourse must be viewed with scepticism. Actors participating in the 2010 ATME represented a relatively homogenous group of science-minded actors. The issue of necessary emission cuts as climate change mitigation measures was only considered as a symbolic gesture but discussions about binding obligations were referred to responsibilities of the UN. Further, in the transition of the climate change discourse from the 2010 ATME to the ATCM, difficulties for a continuous drive of the discourse became apparent.

7.3.2. Similarities between the two case studies

There were a number of similarities between the two case studies. Similarities could be found in the setting and staging of the ATMEs, the distinction of concerns about Antarctic environments, concerns about human activities, and approaches such as risk assessments. Recommendations to the ATCM, identified values underlying the discourse and links to the broader ATS and global discourses. Again, each aspect will be discussed in more detail in the following.

7.3.2.1. Dramaturgy

The dramaturgy of the interaction in each ATME, in terms of the meetings' setting and staging, as well as the actors playing a role in it, showed certain patterns that indicated the focus of each meeting. Topics of both ATMEs had a clear governance and management focus – which was further underlined by the ATMEs' titles. A prevailing character of participating actors could be identified for both ATMEs, which was also reflected in the meetings' discourses. Although topics set by ATCM Decisions framed each ATME, the expert meetings developed own dynamics in terms of internal working groups (2010 ATME) or an ICG (2009 ATME). In both cases the host of the ATME played an important role in staging the meeting, providing the opening addresses as well as an overview of the topics and expectations in a meeting document, besides being well represented at the meeting. Detailed analyses of the ATMEs could both identify groups of actors who were especially engaged and active in the discourses while other participating actors featured nowhere in the documents. Australia and ASOC were especially engaged in terms of submitting meeting documents to both ATMEs. On the other hand, groups of potential actors, most notably Non-Consultative Parties, did not attend any of the two ATMEs. Against this background, both ATME discourses were mainly driven by a

relatively small number of key groups of actors, including the original signatories of the Antarctic Treaty, as well as ATCM Observers and ATCM Experts such as ASOC and IAATO who regularly attend.

7.3.2.2. Concerns about the environment and human activities in Antarctica

Both the ship-born tourism and the climate change discourse revolved around two different concerns: adverse consequences for Antarctic environments, including associated ecosystems, and the safety of human life and Antarctic operations. The protection of the Antarctic environment and human safety were identified as the two ends within both ATME discourses. Both ends were presented as two independent goals, which cannot be compromised. It is striking that neither ATME discourse considered these two ends as conflicting with each other. Contradictions between nature preservation and human safety were subliminally expressed only in the discussion on tourist ships anchoring in Antarctica.

Both discourses also emphasised two extreme sides of Antarctica's environment: Antarctica's environment as a hazard to human life and the vulnerability of the same environment to human impacts and climate change. There is not only an appreciation of Antarctica's environment and human safety, but an awareness of existing risks for both in the human interaction with Antarctica. Against this background, the lack of acknowledgment of the controversy between Antarctic environmental protection and human use is surprising. Moreover, given the awareness of existing risks for nature preservation, benefits from continuing human activities in Antarctica seem to outweigh the costs of environmental damage. Particularly the climate change discourse highlighted the great value of the knowledge that can be gained from Antarctic ice cores or the value of experiencing Antarctica for raising public awareness on climate change.

7.3.2.3. Risk assessment

Another similarity between the ATME ship-borne tourism and ATME climate change discourses related to risk assessments that were carried out by individual actors in both ATME discourses. Risk assessments concerned external factors such as the state of the Antarctic environment and Antarctic operations but did not focus on performances or the efficiency of the ATCM itself. This is critical with respect to two aspects that were mentioned in the ATS framework analysis (Chapter 3): firstly, the critique of a lacking progress of ATCMs in developing new instruments to deal with emerging challenges, and secondly, Stern's principle of interactive risk management (which was only briefly mentioned in Chapter 3) as a means to institutional adaptation and change through continuous learning from operations.

7.3.2.4. Recommendations

Recommendations to the ATCM built on the principle of well-informed decision-making, which was linked to the emphasis of communication and information exchange. Communication included the coordination with UN programmes and specialised agencies, for which both ATMEs recommended maintaining links to global politics. The consideration of available knowledge from various sources (including ATS-external institutions), but also investment in further knowledge production in line with policy needs was recommended in both case studies. Further, possibilities of collaborations were stressed for the accumulation of information and for effective and efficient actions as a result of collective efforts.

Information was ascribed a high value in both discourses, often described as the key to decisions and actions. However, decisions are usually not only based on facts but also values

and beliefs (Dietz, 2013). Apart from individual and situational differences that influence decision-making (Appelt et al., 2011), there are other factors that can cause variations in how information is used for decision-making, such as motivations in the context of other related interests or ideology (Kahan, 2013). Therefore, decisions will still depend on individual interpretations of information and the level of importance assigned to such information, which may vary given the diversity of political actors involved in Antarctic policy.

7.3.2.5. Embeddedness in broader discourse

Both ATME discourses were further embedded in broader discourses within ATCMs as well as the international community. The 2009 ATME discourse on ship-borne tourism in Antarctica was closely linked to preceding ATCM discourses on shipping and tourism in Antarctica, and influenced by the IMO's work on the development of the Polar Code. In the case of the 2010 ATME, the discourse on climate change incorporated key concepts of the global climate change discourse (i.e., mitigation, adaptation, energy efficiency), which demonstrates links between the ATME and the global discourse.

Different levels of value and belief systems, which were likely to have had an impact on Antarctic policy-making, were shown in Figure 3.10 (Chapter 3). Both case studies (2009 ATME and 2010 ATME) confirmed interactions occurring between the upper collective levels from global politics to ATS institutions. However, documents included in the discourse analyses of both case studies did not allow a detailed analysis of the complexity of actors participating in these discourses. Actors' differentiation between governments or organisations and their individual representatives could not be determined in a consistent way. Some meeting documents name individual authors, but not all of them, and the reports do not distinguish between individuals of the same delegation at all. Accordingly, ATPs and other organisations had to be treated as entities in the analyses. Value and belief systems of individuals involved in Antarctic policy-making are still important as it is the individuals, in representing governments or organisations, who interact in action situations of the policy-making process. Given the requirement of consensus decision-making within the ATS, the congruence between individual and different collective value systems presents an important research area that needs further investigation.

7.3.2.6. Human values driving the discourse

Many of Schwartz's basic human values could be identified in both the 2009 ATME and the 2010 ATME discourses. The most prominent value was *Security*, which referred to human safety as well as the protection of Antarctic environments in both case studies. Linked to the concern for the wellbeing of Antarctic environments are the values *Benevolence* and *Universalism* in terms of caring for another entity (Benevolence) and the desire for the preservation of nature (Universalism), which were also inherent in both case studies. Closely connected to security, in both case studies, was the aspect of control over risks to ensure security. This rationale represents an aspect of *Power*. Further, both case studies showed some evidence of Hofstede's cultural dimension *Uncertainty Avoidance*, inasmuch as the actors in both cases gave explicit suggestions regarding how to deal with, and overcome, existing knowledge gaps for the governance and management of Antarctica. Both case studies highlighted the importance of *Conformity* with rules – another of Schwartz's basic human values – and obligations manifested in the ATS for the functioning of the governance and management mechanisms, and to achieve human and environmental security in Antarctica. The reference to the Antarctic Treaty is evident in calls for international collaborations and the emphasis of the important role of science in Antarctica, which are both included in the 2009

ATME discourse as well as the 2010 ATME discourse. References to the Madrid Protocol are explicit in the 2010 ATME discourse where ATPs are reminded of their obligation to protect the Antarctic environment, and in the 2009 ATME discourse with regard to obligations arising of the Annexes to the Madrid Protocol (e.g., Annex IV – Prevention of Maritime Pollution, Annex V – Area Protection and Management, and Annex VI – Liability Arising from Environmental Emergencies).

7.4. Research questions

The three research questions developed in the theoretical part of the thesis, will be discussed again separately for each case study. Although there are a few overlaps, each ATME includes aspects that deserve particular attention and detailed explanation.

7.4.1. Role of Antarctica

What role is ascribed to Antarctica concerning contemporary issues?

7.4.1.1. Ship-borne tourism

The two different roles of Antarctica – as either a source of hazards or a place vulnerable to human impacts – became particularly apparent in the 2009 ATME discourse on ship-borne tourism. The harsh Antarctic environment and climate bring forth numerous serious hazards (e.g., sea ice and icebergs, extreme weather, isolation) that make navigation through Antarctic waters dangerous and risky to human life. On the other hand, Antarctic environments are special because of their climatic conditions, which provide Antarctica its unique character of vast and icy landscapes with endemic species living in the absence of a native human population. Because of this special character, Antarctica is particularly sensitive to any kind of changes – physically, ecologically and from an aesthetic point of view. This dual role of Antarctica explains the combination of humanitarian and environmental risks associated with maritime incidents, which was the key issue of the 2009 ATME discourse.

Ice as a hazard for shipping is well known since the tragic sinking of the Titanic in 1912, after colliding with an iceberg. This incident led to the establishment of the IMO (Sekimizu, 2012) and is still remembered today with the annual World Maritime Day. The Titanic disaster, along with many other shipping accidents resulting in large-scale casualties, clearly showed the potentially fatal consequences of maritime incidents. Thus, the value of safety of human life at sea is an ongoing concern, despite international conventions that seek to make the seas a safer place for human beings (Schröder-Hinrichs et al., 2013, 2012). Safety risks of shipping in polar regions are also a topical issue in the Arctic, where the security discourse involves both human and environmental aspects (Hoogensen Gjørv et al., 2014; Stokke, 2011).

Environmental risks of maritime incidents have a history as well. Global awareness about the disastrous ecosystem consequences of oil spill due to shipping accidents has increased at least since the Exxon Valdez incident off the coast of Alaska in 1989. Although worse oil spills, in terms of the extent of discharge, had been experienced in other parts of the world before, to date, the Exxon Valdez incident is the largest oil spill in United States waters and gained massive media attention accompanied by extensive lobbying from environmental NGOs, celebrities and politicians (Dearing & Rogers, 1996; Smith, 1993). Direct political consequences are obvious in the United States legislation with the 1990 Oil Pollution Act. Only a few months after the 2009 ATME, between April and July 2010, one of the largest oil spills in history occurred the in the Gulf of Mexico, which became known as the Deepwater

Horizon oil spill. These two examples sent pictures around the world, making the impact and devastation of oil pollution visible while leaving no doubt about oil spills being inherently bad and undesirable.

Although there are no direct references to these historic incidents in the 2009 ATME discourse, the severity of potential adverse consequences of maritime incidents seems commonly understood with consequences linked to loss of human life and environmental pollution. An understanding of the meaning of such consequences is also evident in the call for mandatory regulations for shipping in Antarctic waters. Therefore, a preceding process of substantial social learning can be assumed.

7.4.1.2. Climate change

The climate change discourse of the 2010 ATME gave Antarctica a crucial role in the global phenomenon of climate change. The importance and seriousness that is given to the issue of climate change on an international level, also raises the importance of Antarctica or, more precisely, Antarctic science to the rest of the world. But Antarctica's global significance goes beyond the climate change phenomenon. Antarctica is an integral part of the Earth System, which is only highlighted by the implications of climate change.

The relation between climate change and Antarctica was considered in the 2010 ATME discourse from different perspectives. Similar to the 2009 ATME discourse on ship-borne tourism, the perspective of implications for the Antarctic environment and the perspective of implications for human activities and built environments (Chapter 2) were included in the 2010 ATME discourse. Antarctic environments and ecosystems are stressed as particularly vulnerable to climatic and environmental change. Current rapid environmental change due to warming temperatures in the Antarctic Peninsula and in the Arctic are also highlighted in the broader climate change discourse with reference to IPCC reports. In the view of such extensive ice discharges, the Antarctic Ice Sheet, which gives Antarctica the symbolic character of an ice continent, and which is a crucial element of Antarctica's aesthetic value (Summerson & Bishop, 2012), becomes a serious threat of sea level rise, as repeatedly stressed in the 2010 ATME discourse. Further, the Antarctic Ice Sheet represents a third perspective included in the 2010 ATME discourse, which is the scientific view on the ice as a valuable source of information about past climates (paleoclimates) and climate changes, which can be gained from ice cores.

Antarctica was assigned a potential symbolic role for the political problem of climate change with reference to emissions of greenhouse gases. Performing best practice in energy efficiency and emissions cuts should send an important message to the rest of the world that climate change mitigation is feasible – even in Antarctica, where conditions are difficult. But Antarctica provides another opportunity to demonstrate commitments to climate change mitigation that have not been mentioned in the 2010 ATME discourse. As briefly indicated in Chapter 2, the nature of the problem of climate changes causes severe management complications. Human-induced greenhouse gas emissions are produced locally, but once in the atmosphere, their effects are global. This means climate change effects can be detached from their sources, and some places particularly vulnerable to climate changes can be hit hard even though human activity there is low. The latter describes the situation in Antarctica. ATS policy-makers are in the unique position to be responsible for a place heavily affected by climate change but with relatively low human activity while being sovereigns of states with high energy consumption and emissions.

7.4.2. Value conflicts

Where and why do conflicts arise in the ATS policy-making processes that are based on conflicting values?

7.4.2.1. Ship-borne tourism

Potential conflicts in the discourse on ship-borne tourism at the 2009 ATME and beyond became apparent around discussions on responsibilities of port states versus flag states and whether the capability of PSC should be strengthened. Arguments for strengthening PSC stressed that PSC could be a supplement management mechanism with the aim to increase control over vessels' compliance with international standards and ultimately to reduce the risks of maritime incidents. Thus, PSC supports the value of safety at sea for the sake of both human life and the environment. There are no arguments against this rationale in the 2010 ATME discourse. On the contrary, PSC to ensure human safety and the protection of the environment is acknowledged. Concerns about strengthening PSC arose from a different perspective, which became clearer in the discourse at the ATCM following the 2009 ATME.

Concerns about enhanced PSC were linked to consequences that might go beyond ship-borne tourism, affecting ATPs' operations and ships. These concerns implicitly expressed an unwillingness of giving up sovereign powers over own properties and operations in favour of better security mechanisms to reduce humanitarian and environmental risks associated with maritime incidents. Thus, there are value conflicts between actors who emphasis the value of power and actors who emphasis the value of security. However, the issue of PSC goes further. In the discussion on whether control mechanisms should apply in a consistent manner to all ships navigating in Antarctic waters or government ships should be excluded from such controls, another conflict in value emphasis becomes apparent where power opposes universalism in terms of the principle of equality and justice for all.[100]

The anchoring controversy (the discussion on anchoring damaging the Antarctic sea floor environment versus anchoring being important for human safety on vessels), constitutes a special kind of value conflict. Arguments emphasised either the safety of human life[101] or the preservation of nature.[102] Although both goals are generally supported, the critical point is that achieving the one is not possible without detracting from the other. This situation embodies two different types of dilemma. One is the ethical dilemma of incommensurable values, which generally refers to the inability to reduce the values in question to a common measure to make them comparable (Griffin, 1986; Hsieh, 2009; Wiggins, 1997). The safety of human life and the preservation of the Antarctic nature are both valued independently. If one has to compromise to achieve the other, how, and on what basis could trade-offs be justified?

The other dilemma relates to a principal-agent problem, where an agent makes decisions on behalf of the principal, usually under incomplete information and potentially diverging preferences, motivations or incentives held by the agent and principal respectively (Moffitt & Bordone, 2005). Tensions regarding the agency dilemma came to the fore in an argument within the anchoring debate, included in the 2009 ATME report, which requested scientific evidence that anchoring is damaging the maritime environment. The argument implies a distrust of the claim of the other side. There are obviously different interests on both sides of the anchoring controversy. Conflicts are likely when decision-makers are different actors to those who are affected by the decision. For example, if decision-makers, in favour for the

[100] See Schwartz's basic human values theory in Chapter 1 of this thesis.
[101] Refers to Schwartz's basic human value Security (Personal).
[102] Refers to Schwartz's basic human value Universalism (Nature).

protection of the Antarctic environment, decide to prohibit anchoring in the Antarctic Treaty area, this would have direct implications for Antarctic ship-borne tourism and the safety of their operations.

7.4.2.2. Climate change

In the climate change discourse of the 2010 ATME, no obvious conflicts could be identified. On the contrary, the expert meeting proceeded in consensus. Although consensus is an ideal situation for policy-making (see Chapter 2), it is rather rare due to value plurality (Heazle, 2012; see also Chaper 1). The consensus situation in the 2010 ATME can be explained by the specific set of participating actors, who do not represent the full range of diversity of the ATCMs. Among 2010 ATME participants, consensus is based on an acceptance of science credibility. The severity of climate change risks for the Antarctic environment and the consequences for human establishments in Antarctica and elsewhere were uncontested. Further, the important role of science in Antarctica is generally accepted.

However, the Climategate controversy in particular, demonstrated how science credibility is not always accepted in policy (Maibach et al., 2012). A recent discussion[103] on the distinction between academic consensus, when scientists or other experts on a certain field agree on a specific topic, and consensus at the interface of science and society, where a plurality of diverse actors including political decision-makers are involved (Kosolosky & Bouwel, 2014), calls into question how meaningful the 2010 ATME consensus is in the overall picture. Moreover, in view of existing responsibility issues within the global climate change negotiations, the question arises how strong motivational goals behind values in support of climate change actions really are when competing with other values.

In this context, there is already an inherent conflict within the 2010 ATME discourse regarding the desire to reduce emissions while increasing human activity in Antarctica for more scientific research. Considering recent investments by China, South Korea and India in building new Antarctic stations and icebreakers (Brady, 2013), energy demands in Antarctica are increasing. From the 2010 ATME discourse, it can be inferred that the main emphasis is on continuous and increased scientific research in Antarctica, while efforts towards emission cuts are assigned a symbolic value. Technology is seen as a promising means to meet both targets, but, similar to the 2009 ATME, there is a potential value conflict between human needs and the protection of nature.

7.4.3. Value change

What changes in the underlying belief systems are driving policy-making processes, and what has caused the change?

7.4.3.1. Ship-borne tourism

In Chapter 3, the aspect of change was brought up in the context of emerging challenges for the ATS. Circumstances of Antarctic policy-making have changed with increasing human activity in Antarctica and number of actors involved in the policy-making process. The question of changes in belief systems underlying policy-making (i.e., core beliefs that are based on values) was considered in the context of a changed environment and unexpected events such the sinking of the *M/S Explorer*.

[103] See Judith Curry's blog Climate Etc. entry from 18/09/2014: http://judithcurry.com/2014/09/18/distinguishing-the-academic-from-the-interface-consensus/ (accessed: 28/11/2014)

In the case of the ATS discourse on ship-borne tourism, a change in the discourse could be found in the discussion about the development of a Polar Code by the IMO. There is a shift to a mandatory approach for the regulation of vessels navigating in Antarctic waters as a result of the admission that international law is needed to ensure tourism practices are in line with ATS principles and responsibilities. However, there is no clear evidence that the *M/S Explorer* incident fundamentally changed belief systems either within global governance or the ATS policy subsystem. Awareness about existing hazards of navigating in Antarctic waters and associated risks to the Antarctic environment has been documented widely already before the incident. The idea of mandatory shipping regulations occurred long before the *M/S Explorer* incident, but was put aside in favour of non-mandatory guidelines.

Within the ATS, however, the *M/S Explorer* incident has changed the dynamics between the ATCM and the tourism industry represented by IAATO. The sinking of the *M/S Explorer* in Antarctica, in addition to a series of maritime incidents in Antarctica involving tourism vessels, was alarming to ATPs and resulted in an increased emphasis on definite and universal rules for the regulation of ship-borne tourism in Antarctica. This reaction is explicit in the ATCM discourse prior the 2009 ATME as well as in Taylor's opening address. Even if this reaction does not reflect a significant change in core beliefs about Antarctic policy, Antarctic tourism issues became a governance priority matter.

7.4.3.2. Climate change

The climate change discourse within the ATS was little developed before the 2010 ATME. Therefore, any changes in the ATS discourse could not be identified. It was up to the expert meeting to boost the climate change discourse in the ATCMs. The nature of the topics for discussions in the 2010 ATME was very general and basic (e.g., the identification of key aspects of climate change, implications of climate change for the Antarctic environment, implications of climate change for human activities in Antarctica). In fact, the topics suggest that the foundation, on which value and belief systems can form, has to be established first. The ATS climate change discourse seems to be still in the progress of figuring out what climate change in Antarctica means for Antarctica and for the ATS. Problematic, however, is the fact that only a small group of relative homogenous actors is leading the climate change discourse within the ATS while the majority of ATPs are not actively participating in this critical phase of establishing the basics of how to understand and approach climate change in Antarctica.

7.5. Final conclusion

The research presented in this thesis highlights two very different and prominent perspectives of Antarctica that form the foundation for two, almost diametrically opposed, roles that Antarctica assumes. These are the roles of Antarctica as a physical place, characterised by its nature and the role of Antarctica as a social construct represented in the ATS. In either role, Antarctica is valued differently. Antarctica as a nature reserve becomes a value object that can be valued either as a whole or, more often, as defined by certain properties. These properties include the Antarctic Ice Sheet, the Southern Ocean, Antarctic terrestrial and maritime ecosystems, Antarctic mineral resources, but also the aesthetics of Antarctic landscapes. All of these properties can be valued independently as well as all together as one Antarctica. On the other hand, Antarctica symbolises certain human values that manifest in principles or social norms guiding human interactions with Antarctica. From this perspective, human beings are the focus and their values judge what behaviour is acceptable in Antarctica and what is not. Such value judgements include the protection of Antarctic environments. Both perspectives,

focussing either on Antarctica or on human beings interacting with Antarctica, describe human connections to Antarctica through values. Valuing Antarctica, caring for the wellbeing of Antarctica and its properties, and applying worldviews and social norms to Antarctica are ways to connect with the place.

The two case studies presented in this thesis demonstrate how caring for the wellbeing of human beings and of Antarctic environments overlap in Antarctic policy matters and have to be dealt with together rather than separately. This situation is also due to the ATS, which integrates both perspectives of Antarctica as a value object and of Antarctica as a system of human values and social norms. While the Antarctic Treaty originally considered solely the perspective of how humans ought to use and interact with Antarctica, the Madrid Protocol added a focus on Antarctic values. Together, the ATS regime ascribes Antarctica intrinsic value and sets standards for human interactions with Antarctica. However, Antarctic environments and human activities in Antarctica impact each other, and the political discourses in the two case studies had to negotiate between environmental conservation values and human safety values. This is a challenging task because it requires two different value judgements that must be reconciled. Moreover, conservation and human safety values are not the only values shaping political discourses in Antarctic affairs. Numerous basic human values could be identified in the two case studies, as mentioned above. Most notably, the value of knowledge sits, next to nature preservation and human safety in Antarctica.

Value negotiations within Antarctic policy-making are challenging, not only due to value plurality but also because of the different layers of value systems that are incorporated in the policy-making processes. Negotiations must consider ATS principles, global politics and value emphases of national governments and other international Antarctic stakeholders. Moreover, nature conservation, human safety or compliance with rules and formal obligations, which are aspects that have been highlighted in discourses of both case studies, can also relate to personal values of individual political actors. Therefore, it is likely that negotiations are also influenced by personal values through individual actors involved in these negotiations.

Overall, there is immense potential for conflicts in negotiating values within one value system (e.g., ATS institutions) and across various value systems (e.g., global politics, different governmental departments, individuals). Therefore, the research on values involved in Antarctic policy is important, because it focuses on the core of policy-making. Regardless of what the issue at stake is, how the issue is understood and contextualised in terms of its consequences and how consequences are assessed to initiate political actions, are critical questions for policy-making – and values play a crucial role in answering those questions. On the different levels and between actors answers may vary due to differing priorities, for which the real challenge of Antarctic policy-making is finding consensus. The detection of conflicting values in ATS negotiations can improve the understanding of existing conflicts, but not resolve conflicts. Resolutions are highly dependent on the situation, actors involved, experiences and the type of value conflict.

7.5.1. Limitations

Generally, discourse analysis is a very promising qualitative method for policy analysis with focus on underlying socio-psychological mechanisms (Fairclough, I. & Fairclough, 2012). It has the sensibility and depth to deal with highly complex situations and bring them into an intelligible structure. The underlying values that shaped the political discourses in the two case studies were inferred from structures and patterns identified in each discourse. The theoretical model developed in this thesis provided the coarse structure for both analyses, which allowed for the discourses to be compared. However, structural elements for the analysis of the

discourse (i.e., issue profile and adverse consequences, awareness and ascription of responsibility) referred to belief systems at the institutional level with actors that could only be identified by the government or international organisations they represented. It is not clear how much insight into the private sphere of individual belief systems was transferred into the documents. Further, information provided in the documents about actors' affiliations allowed assumptions about their familiarity with the subject of discussion, but assumptions about how familiar they had been with the given action situation (ATME) were difficult. Conflicts identified in the document analysis could have been further researched with more sensitive and specific data. Often conflicting parties could be identified, thus more sensitive and specific data could have gained from targeted interviews with key players of the conflict. The detection of value change usually requires long-term observation, which was not possible for the climate change discourse. It is probably worth keeping an eye on the further development of the ATCM climate change discourse, as it may change in the transition from basic to more applied questions.

7.5.2. Suggestions for future research

The discourse analyses of topical issues in Antarctic policy conducted in the scope of the present thesis, which was based on ATS documents, provided an abundance of information about how the dramaturgy of the discourse had an influence on the discourse, how the issue at stake was defined and further deliberations on consequences and responsibilities associated with the issue. On this basis, conflicts and underlying values in the discourse could be identified. In the future, interviews could be employed to add a different dimension to the discourse analysis that was achieved through document analysis.

Particular aspects of conflict potential identified in the document analysis offer opportunities to delve deeper into values associated with Antarctica. For example, underlying values of the PSC debate should be further investigated. The PSC debate involves various values, which has encouraged a diversity of actors to engage in the discussions and discourse coalitions between actors have been also formed. Therefore, the PSC debate provides a multifarious discourse in its own.

Value conflicts between nature conservation and human safety in Antarctica present another aspect with more research potential. Nature conservation and human safety in Antarctica have proven to be two important values in Antarctic policy. However, as the document analysis has shown, these two ends cannot always be achieved in harmony with each other, causing conflicts and even dilemma situations. Further investigations should include Non-Consultative Parties and other silent actors in the documented discourses to understand their viewpoints on the matter at stake. Such research would focus on the individual value and belief systems of actors involved and the interactions between the individual and different levels of collective value and belief systems and would help us understand how personal values agree or disagree with ATS value systems.

Lastly, climate change brought up a number of new questions that should be investigated further. In light of the difference between consensus among experts in a specific field and consensus among a diversity of stakeholders, an interesting research question would address how Antarctic climate change science and Antarctic climate change policy differ in achieving consensus. Considering ATPs are not obligated to undertake climate change actions in Antarctica, but encouraged to such actions for their symbolic value, the degree of commitments to climate change mitigation and adaptation among different Antarctic decision-makers and operators is a further area worth investigating.

7.5.3. Contribution to knowledge

This thesis has provided a comprehensive theoretical basis on how different aspects of values are linked and how these aspects can be applied to Antarctica. It is the first study that examines values in the Antarctic context using discourse analysis. For this purpose, a definition of values and a theoretical model has been developed to allow the identification of values through systematic analysis suitable for discourses within the ATS. It has shown that values play a crucial role in Antarctic policy-making at a number of different scales: individuals, political actors, and governmental levels. Values are also at the core of most, if not all, conflicts. An understanding of the values held by the various stakeholders involved in governing and use of the Antarctic is crucial for further decision-making and research.

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Appendix I

List of documents

Case Study I

2009 ATME report

2009 ATME meeting documents:

Document	Submitted by	Title
WP1	New Zealand	Antarctic Treaty Meeting of Experts on the Management of Ship-borne Tourism in the Antarctic Treaty Area - An Overview
WP2	New Zealand	Past and future changes in sea ice around Antarctica
WP3	France	Managing Human and Environmental Risks in Antarctica
WP4	New Zealand	New Zealand: Hydrographic Surveying and Charting In the Ross Sea Region, Antarctica
WP5	New Zealand	Marine oil spills in the Antarctic Treaty Area – Environmental considerations regarding oil spill behaviour and potential for impacts
WP6	New Zealand	Oil Spill Response
WP7	New Zealand	A Proposal to Enhance Port State Control for Tourist Vessels Departing to Antarctica
WP8	Australia	Environmental Aspects of Antarctic Ship-borne Tourism
WP9	Australia	Enhanced coordination of Antarctic Treaty proposals within the IMO
WP10	Australia	Review of Protocol Annex IV Prevention of Marine Pollution
WP11	New Zealand	Enhancing cooperation between MRCCs and National Antarctic Programmes
WP12	United Kingdom	The Antarctic Polar View Programme. Information from satellite observations for safer and efficient sea ice navigation
WP13	Chile	Recommendations for reducing risks that affect the safety of human life, considering the increase in Ship-borne tourism in Antarctica during the last decade
WP14	New Zealand	Vessels flagged to non-Parties: Possible Implications for Emergency Response to Environmental Emergencies
WP15	Argentina	Increase of Antarctic tourism vessel incidents – Overview and proposed course of action
IP1	ASOC	Antarctic Ship-borne Tourism and Inspections Under Article VII of the Antarctic Treaty and Article 14 of the Protocol on Environmental Protection
IP2	ASOC	Antarctic Ship-borne Tourism: Perspectives on Shipping Management
IP3	ASOC	Making Tangible Progress on a Strategic Vision for Antarctic Tourism
IP4	ASOC	Coastal Hydrocarbon Pollution: A Case Study From Deception Island, Antarctica

IP5	IMO	International requirements for ships operating in polar waters
IP6	IMO	Draft Assembly Resolution. Guidelines for Ships Operating in Polar Waters
IP7	IAATO	IAATO Summary of Antarctic Ship-Based Tourism: Final Statistics for the 2008-09 Season and Revised Estimates for the 2009-10 Season; Projected Trends through the 2012-13 Season
IP8	IAATO	IAATO Actions and Recommendations to Tourism Vessel Operators to Enhance Marine Safety
IP9	United States & IAATO	Spatial Patterns of Tour Ship Traffic in the Antarctic Peninsula Region
IP10	COMNAP	Search and Rescue Coordination and Response in the Antarctic: Workshop Discussions
IP11	New Zealand	Annex VI to the Environmental Protocol to the Antarctic Treaty
IP12	United Kingdom	Final Report of the Antarctic Treaty Meeting of Experts – Guidelines for Antarctic Shipping and Related Activities (Originally presented as WP26/ATCM XXIV)
IP13	IHO	Hydrography and Charting
IP14	IHO	Cooperation between the ATCM and the IHO
IP15	Norway	Report of the Continued Intersessional Contact Group on Issues Concerning Passenger Ships Operating in Antarctic Waters
IP16	WTO	Observations on Ship-borne Tourism in Antarctica
SP1	Secretariat	Agenda
SP2	Secretariat	Programme
SP3	Secretariat	List of Participants

Additional ATCM meeting documents:

ATCM (ATME)	Document	Submitted by	Title
XXV (2002)	WP41	United Kingdom	Antarctic shipping guidelines
XXV (2002)	IP27	COMNAP	The Interaction Between National Operators, Tourists and Tourism Operators
XXV (2002)	IP30	IAATO	Chairman's Report from the Aspen Meeting on Antarctic Tourism
XXV (2002)	IP40	COMNAP	The Proposed Antarctic Shipping Guidelines
XXV (2002)	IP75	IAATO	IAATO-Wide-Emergency Contingency and Search and Rescue Plan
XXV (2002)	IP 85	IAATO	Regulatory mechanisms that address Antarctic tourism
(ATME 2004)	WP3	United Kingdom	Tourism: Guidelines related to Shipping. Provisions for non-Treaty flagged vessels

XXVII (2004)	WP9	United Kingdom	Managing adventure tourism: The need for enhanced co-operation amongst Parties
(ATME 2004)	WP12	IAATO	Overview summarizing the terms of reference
XXX (2007)	WP6	United States	Approaches to Tourism Policy – Next Steps
XXX (2007)	WP23	United Kingdom	Safety Issues Relating to Passenger Vessels in Antarctic Waters
XXX (2007)	WP37	Norway	The M/S Nordkapp incident
XXX (2007)	IP85	ASOC	Tourism and the Duty for ATCP Action
XXX (2007)	IP119	Chile	Grounding of Vessels on Deception Island and the M/N "Nordkapp" Incident
XXXI (2008)	WP36	Norway	Report of the Intersessional Contact Group on Issues Concerning Passenger Ships Operating in Antarctic Waters
XXXI (2008)	WP43	United States	Further Development of Antarctic Tourism Policies
XXXI (2008)	IP11	Chile	Background to the pollution incident caused by the sinking of the MS Explorer
XXXI (2008)	IP19	IAATO	Chairman's Report from the Miami Meeting (March 17-19, 2008) on Antarctic Tourism
XXXI (2008)	IP83	IAATO	Regulation of Antarctic Tourism--A Marine Perspective
XXXII (2009)	WP12	Australia, France & New Zealand	Environmental aspects and impacts of tourism and non-governmental activities in Antarctica: Draft project scope
XXXII (2009)	WP30	New Zealand	Antarctic Treaty Meeting of Experts on the Management of Ship-borne Tourism in the Antarctic Treaty Area
XXXII (2009)	IP120	Belgium	Report by Liberia on Sinking of MS Explorer
XXXII (2009)	IP121	Australia	Annex II to the Protocol on Environmental Protection to the Antarctic Treaty
XXXV (2012)	IP33	New Zealand	Environmental Aspects and Impacts of Tourism and Non-governmental Activities in Antarctica
XXXVI (2013)	WP25	United States	SAR-WG Proposed Agenda for Special Working Group Meeting on Search and Rescue (SAR)

ATCM & ATME reports:

- ATCM XXIV (2001)
- ATCM XXV (2002)
- ATCM XXVI (2003)
- ATCM XXVII (2004)
- ATCM XXX (2007)
- ATCM XXXI (2008)
- ATCM XXXII (2009)
- ATCM XXXIII (2010)
- ATCM XXXIV (2011)
- ATCM XXXV (2012)
- ATCM XXXVI (2013)
- ATCM XXXVII (2014)
- 2000 ATME (Guidelines for Antarctic Shipping and Related Activities)
- 2004 ATME (Tourism and Non-governmental Activities in Antarctica)

ATCM Recommendations / Measures, Decisions & Resolutions:

ATCM	Recommendation / Measure (M), Decision (D), Resolution (R)	Title
IV (1966)	Recommendation 27	Regulation of Antarctic Tourism
VI (1970)	Recommendation 7	Regulation of Antarctic Tourism
VII (1972)	Recommendation 4	Effects of Tourist Activity
VIII (1975)	Recommendation 9	Statement of Accepted Practices in Tourism
X (1979)	Recommendation 8	Tourist Regulation
XVI (1991)	Recommendation 13	Intersessional Meeting on Tourism
XXII (1998)	R 3	Draft Polar Shipping Code
XXIII (1999)	D 2	Expert Meeting to Develop Draft Guidelines for Antarctic Shipping
XXVI (2003)	D 5	Expert Meeting on Tourism
XXVII (2004)	M 4	Insurance and Contingency Planning for Tourism and Non-governmental Activities in the Antarctic Treaty Area
XXVII (2004)	D 4	Shipping Guidelines
XXVIII (2005)	D 8	Use of Heavy Fuel Oil
XXVIII (2005)	R 5	Site Guidelines for Visitors
XXX (2007)	R 4	Ship-based Tourism
XXXI (2008)	R 6	Maritime Rescue Coordination Centres and Search and Rescue in the Antarctic Treaty Area
XXXII (2009)	M 15	Landing of Persons from Passenger Vessels in the Antarctic Treaty Area
XXXII (2009)	R 7	General Principals of Antarctic Tourism

XXXII (2009)	R 8	Antarctic Shipping Code
XXXIII (2010)	R 5	Co-ordination among Antarctic Treaty Parties on Antarctic proposals under consideration in the IMO
XXXIII (2010)	R 7	Enhancement of Port State Control for Passenger Vessels Bound for the Antarctic Treaty Area
XXXV (2012)	D 4	Electronic Information Exchange System

Other documents:

IMO: *International Code for Ships Operating in Polar Waters* (Polar Code), 2014

Case Study II

2010 ATME report

2010 ATME meeting documents:

Document	Submitted by	Title
WP1	Norway & United Kingdom	Implications of climate change for management and governance of the Antarctic region – an overview
WP2	Australia	Management implications of climate change in the Antarctic region – an initial Australian assessment
WP3	United Kingdom	The Implications of Climate Change for the Antarctic Protected Areas System
IP1	SCAR	Antarctic Climate Change and the Environment: Key Findings
IP2	SCAR	Antarctic Climate Change and the Environment: Recommendations
IP3	IAATO	IAATO's Climate Change Working Group
IP4	Australia	Australian Antarctic Climate Change Research Priorities
IP5	Australia	Southern Ocean Sentinel: an international program to assess climate change impacts on marine ecosystems
IP6	United States	Energy Management Strategies for U.S. Antarctic Research Stations
IP7	ASOC	The Future of the West Antarctic Ice Sheet: Observed and Predicted Changes, Tipping Points, and Policy Considerations
IP8	ASOC	Antarctic Penguin Response To Habitat Change As Earth's Troposphere Reaches 2°C Above Pre-Industrial Levels
IP9	ASOC	Environmental and Economic Benefits of Climate Change Mitigation and Adaptation in Antarctica
IP10	ASOC	Antarctic Krill Fisheries and Rapid Ecosystem Change: The Need for Adaptive Management
IP11	New Zealand & United States	Ross Island Wind Energy Project: Sustainability through collaboration
IP12	United States	Directions and Challenges in the United States Antarctic Program's Climate Research

IP13	New Zealand	Antarctica and Global Change – keeping up with the Science
SP1	Secretariat	Agenda and Schedule

Background documents:

ATCM	Document	Submitted by	Title
XXIX (2006)	IP	New Zealand	Conference on Climate Change and Governance, Wellington, March 2006
XXIX (2006)	IP62	ASOC	The Antarctic and Climate Change
XXIX (2006)	IP76	SCAR	Climate Change: an Antarctic Perspective
XXIX (2006)	IP89	SCAR	Plans for an Antarctic Climate Assessment – Trends and Impacts
XXX (2007)	WP28	Norway	Climate Changes
XXX (2007)	IP5	SCAR	State of the Antarctic and Southern Ocean Climate System (SASOCS)
XXX (2007)	IP82	ASOC	The Antarctic and Climate Change
XXX (2007)	IP124	SCAR	SCAR Lecture. "Climate Change and the Antarctic: What Next?"
XXX (2007)	IP138	United Kingdom	Antarctica and climate change – implications for governance
XXXI (2008)	WP35	Norway & United Kingdom	Antarctic Climate Change Issues
XXXI (2008)	IP47	Russia	Variability of Antarctic climate
XXXI (2008)	IP50	United Kingdom	Antarctic Peninsula: rapid warming in a pristine environment
XXXI (2008)	IP51	United Kingdom	Antarctic Peninsula: Ice shelf status
XXXI (2008)	IP56	ASOC	Impacts of Climate Change on Antarctic Ecosystems
XXXI (2008)	IP62	SCAR	Antarctic Climate Change and the Environment: A Progress Report
XXXII (2009)	WP38	United Kingdom	Climate change and the Antarctic environment: Management implications
XXXII (2009)	IP5	SCAR	SCAR's Antarctic Climate Change and the Environment (ACCE) review report
XXXII (2009)	IP35	ASOC	Policy implications arising from SCAR's report: Antarctic climate change and the environment

Additional ATCM meeting documents:

ATCM	Document	Submitted by	Title
XXVI (2003)	IP102	SCAR	Predicting the state of the Southern Ocean during the 21st century
XXXIV (2011)	WP43	United Kingdom & Norway	Developing a Simple Methodology for Classifying Antarctic Specially Protected Areas According to their Vulnerability to Climate Change
XXXIV (2011)	WP44	United Kingdom & Norway	Progress report on ATME on Climate Change
XXXIV (2011)	IP74	Norway	Assessment of wind energy potential at the Norwegian research station Troll
XXXV (2012)	WP32	Australia	ATCM interests in international climate change discussions – options for enhanced engagement
XXXV (2012)	WP33	United Kingdom & Norway	RACER1 - 'Rapid Assessment of Circum-Arctic Ecosystem Resilience': a tool from the Arctic to assess ecosystem resilience and areas of conservation importance, and its possible application to Antarctica
XXXV (2012)	IP4	COMNAP	Management Implications of a Changing Antarctica - COMNAP Workshop
XXXV (2012)	IP31	COMNAP	Best Practice for Energy Management – Guidance and Recommendations
XXXV (2012)	IP44	SCAR	Communicating the Science of Climate Change
XXXV (2012)	IP58	ASOC, Australia & United Kingdom	Earth Hour Antarctica (2013)
XXXV (2012)	SP8	Secretariat	Actions taken by the CEP and the ATCM on the ATME Recommendations on Climate Change

ATCM reports:

- ATCM XXX (2007)
- ATCM XXXI (2008)
- ATCM XXXII (2009)
- ATCM XXXIII (2010)
- ATCM XXXIV (2011)
- ATCM XXXV (2012)
- ATCM XXXVI (2013)
- ATCM XXXVII (2014)

ATCM Measures, Decisions & Resolutions:

ATCM	Recommendation / Measure (M), Decision (D), Resolution (R)	Title
XXXII (2009)	D 1	Meeting of Experts on Climate Change
XXXI (2010)	D 5	Letters to UNFCCC, IPCC, WMO and IMO on the SCAR ACCE Report
XXXI (2010)	R 4	SCAR Antarctic Climate Change and the Environment Report

Other documents:

- SCAR: *Antarctic Climate Change and the Environment* (ACCE), 2009